

# **AWEIS** Ignition System

ALL WEATHER ELECTRONIC IGNITION SYSTEM > INSTRUCTIONS

# Models Covered in this Instruction Set



## **Product Certifications**

This QR Code will always take you to the most recent certifications for the entire Fire by Design product line.

You can also type in the URL directly: https://qr.devsiteview.com/g/1mSc4f5YYZU





**INSTALLER:** Leave this manual with the appliance. **CONSUMER:** Retain this manual for future reference.

#### **Proposition 65 Warning**

Operating, servicing and maintaining this appliance can expose you to chemicals including

Carbon Monoxide and Lead which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.Prop65Warnings.ca.gov

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WARNING	WARNING
Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment	For use with NATURAL or LP GAS Only NO SOLID FUELS TO BE USED WITH THIS SYSTEM
WARNING	
Do not store or use gasoline or other flammable vapors and liquids in vio	cinity of this or any other appliance.
An LP-cylinder not connected for use shall not be stored in the vicinity of	of this or any other appliance.
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CARBON MONOXIDE HAZARD	
This appliance can produce carbon monoxide which has no odor.	
Using it in an enclosed space can kill you.	
Never use this appliance in an enclosed space such as a camper, tent c	ar or home.
Installation must conform with local codes or, in the absence of local co	des, with the

National Fuel Gas Code, ANSI Z223.1 / NFPA 54, or International Fuel Gas Code.

The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electric Code, ANSI/NFPA 70, if applicable.



#### **AVERTISSEMENT**

Ne pas entreposer ni utiliser de l'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de l'appareil, ni de tout autre appareil. Une bouteille de propane qui n'est pas raccordée en vue de son utilisation, ne doit pas être entreposée dans le voisinage de cet appareil ou de tout autre appareil. 

#### **AVERTISSEMENT**

Une installation, un ajustement, une modification, une réparation ou un entretien inapproprié peuvent être la cause de blessures ou de dommages. Veuillez lire attentivement les instructions d'installation, d'utilisation et d'entretien avant d'installer ou de réparer ce matériel.

#### **AVERTISSEMENT**

Ne pas utiliser cet appareil s'il a été plongé, même partiellement, dans l'eau. Appeler un technicien qualifié pour inspecter l'appareil et remplacer toute partie du système de commande et toute commande qui a été plongée dans l'eau.

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#### **AVERTISSEMENT**

#### **AVERTISSEMENT**

Pour utilisation

Pour utilisation avec naturel ou propane ne gaz seulement Aucun combustibles solides pour être utilisés avec ce système.

à l'extérieur seulement.

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#### DANGER

S'il y a une odeur de gaz:

Coupez l'admission de gaz de l'appariel.

Éteindre toute flamme nue.

Si l'odeur persiste, éloignez-vous de l'appareil et appelez immédiatement

le fournisseur de gaz ou le service d'incendie.

#### MONOXYDE DE CARBONE

Cet appareil peut produire dumonoxyde de carbone, un gaz inodore. L'utililisation de cet appareil dans des espases clos peut entrainer la mort.

Ne jamais utilizer cet appareil dans un espace clos comme un vehicule de damping, une tente, une automobile ou une maison.



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# **Icon Legend**

(ウ) Hardwired 24/30V Models

Battery Powered Models

# What's in an AWEIS System?

Below is a list of the base contents that each AWEIS system. If you purchased a different model that includes a type of enclosure, please refer to that specific model number instruction set.



# 💙 Standard Capacity AWEIS

- 1. 1/2" AWEIS Box FS
- 2. 18" Pilot Burner Assembly FS
- 3. 50VA 24VAC Transformer
- 4. 185VA 30VDC Power supply (Add-On)
- 5. 1/2" Orifice or Air Mixer (Add-On)
- 6. 1/2" Heat Shield



## (♥) High Capacity AWEIS

- 1. 3/4" AWEIS Box FS
- 2. 18" Pilot Burner Assembly FS
- 3. 50VA 24VAC Transformer
- 4. 185VA 30VDC Power supply (Add-On)
- 5. 1/2" Orifice or Air Mixer (Add-On)
- 6. 3/4" Heat Shield



## Battery Powered AWEIS

- 1. 1/2" BPAWEIS Box
- 2. 18" Battery Pilot Burner Assembly
- 3. Water Proof Battery Pack
- 4. (3) AA Lithium Batteries
- 5. Control Panel (Rocker Switch and LED Light)
- 6. 1/2" Orifice or Air Mixer (Add-On)
- 7. 1/2" Heat Shield

## **Options & Additional Items**

Our Pilot Burner Assemblies come in a standard 18" length. You can contact us for longer lengths in 24" and 30".

We also offer Spiral Burners and Marine Grade Linear Burners. Custom legnths can be ordered as well. All burners come in 1/2" or 3/4" tubing. Contact us to learn more.

# **Gas Requirements**

**Fuel Type:** Before making gas connections ensure appliance being installed is compatible with the available gas type. *Check the label on the appliance to confirm appliance gas type requirement.* 

**Gas Pressure:** Proper input gas pressures are required for optimum appliance performance.

Pressure	Natural Gas	Propane
Minimum	3.5" W.C 1/8 psi	8.0" W.C 1/3 psi
Nominal	7.0" W.C ¹/₄ psi	11.0" W.C 1/3 psi
Maximum	14.0" W.C 1/2 psi	14.0" W.C 1/2 psi

# **Electrical Requirements**

Each All Weather Electronic Ignition System is designed to operate on specific power source ranging from a
Weatherproof Battery Pack housing 3 AA batteries, or hardwired to either a 24 Volt AC transformer or a 30 Volt DC power supply. (Check labeling on your specific AWEIS to verify the required voltage and power supply).

DO NOT Attempt to Power using 110 Volts AC Power - Damage WILL RESULT

Recommended Wire Size: 12-gauge wire for all hardwired installations.

# **Daisy Chain Wiring of Multiple AWEIS**

The Fire by Design 24 Volt AC AWEIS has a **Blue** and a **Yellow** wire protruding from it, while 30 Volt DC versions have a **Black** and a **Red** wire. These are the power wires.

When daisy chaining multiple AWEIS, the polarity between the AWEIS **MUST** be the same.

To achieve this, all the **Blue** or **Black** wires must be connected to the same wire from the power supply and all the **Yellow** or **Red** wires connected to the other wire from the power supply as shown in this illustration.

## 24VAC Transformer + Multiple AWEIS



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# **Clearance to Combustibles**

Please provide adequate clearance to combustible materials as shown below:

Enclosure Clearances	Clearance to Combustibles
A - Edge of Burner to Enclosure 6"	<b>C</b> - Bottom of Valve Box to Combustible Floor 2"
<b>B</b> - Top of Enclosure to Pan 3"	<b>D</b> - Top of Burner to Combustible Ceiling 96" (8ft)
	<b>E</b> - Edge of Burner to Combustible Wall 36" (3ft)

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# **Cross Ventilation**

A minimum of 18 square inches (opposite sides) of cross ventilation is required to keep the components in good working order.

Please see our example to the right for how to achieve proper cross ventilation for your fire features.



Failure to provide proper ventilation inside your enclosure could result in part deterioration or at worst cause gas build up and possible explosion.



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**FIRE RISK** 

STOP: The installation should be done by a Qualified Service Technician that is Locally Licensed

## Step 1 - Preparing the Enclosure

In this set up & instruction set, we will be using a generic non-combustible square enclosure.

#### **Gas & Conduit Placement**

## $(\mathbf{r}) + (\mathbf{m})$ Hardwired 24/30V & Battery Powered Models

When placing your enclosure, you want to ensure that the incoming gas line is in the center of your enclosure, this will ensure that the burner will end up in the center of your enclosure. The incoming conduit is of less importance for placement. *See the diagram to the right for an example.* 



Battery powered models will not require installation of electrical conduit.

If your enclosure does not provide enough ventilation, you may need to install risers underneath your enclosure to provide proper ventilation. This is paramount if you are using Liquid Propane.



### Drainage

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## Hardwired 24/30V & Battery Powered Models

Drainage MUST be provided in the enclosure. Drainage can be obtained by making holes in the bottom or sides of the enclosure or elevating the enclosure off the mounting surface by way of risers, spacers or similar methods. *This is similar to providing proper ventilation.* 



### **Access for Operation & Accessories**



There are many scenarios where you will need to have some type of control that is accessible on the outside of the enclosure.

In the case of our **Battery Powered Models**, you will need to install the control panel either on the enclosure (shown to the right) or run the control elsewhere (either to a separate location or perhaps inside a column underneath the enclosure).



## $(\mathbf{r}) + (\mathbf{m})$ Hardwired 24/30V & Battery Powered Models

There are several different methods to connect the AWEIS control box to the incoming gas line. For the remainder of this installation guide, we are going to use the method of attaching the Control Box directly to the Gas Line / Stub.



**Leak Test** – it is highly recommended to perform a gas leak test at this point in the install. Turn on the gas supply and then, using a soapy water solution spray the bottom of the AWEIS where it is connected to the gas line to ensure no leaks exist.

# Step 3 - Connecting the AWEIS unit to a Power Source

## (ウ) Hardwired 24/30V Models

Take the wires that are protruding from the AWEIS and connect them to the two wires from the electrical conduit using appropriate sized wire nuts.



**NOTE:** It is not required but it is recommended to fill the wire nuts with either dielectric grease or silicone prior to installing the wire nut. This will ensure a weatherproof electrical connection.

## Battery Powered Models

Install 3 AA Batteries (not included) into the Battery Pack, then insert the molex connector attached to the Battery Pack to the proper molex BATTERY terminal on the AWEIS.



**NOTE:** No two connectors are the same. This should prevent plugging a component into the wrong connector.

It is possible to plug a connector into the correct receptacle incorrectly. When plugging in a connector just a small amount of pressure is required to plug it in. If excessive force is required, you are probably plugging the connector in incorrectly.



Hardwired models will have on the right side of the AWEIS Ignition Control Box two brass fittings for the Pilot Burner Assembly. It will also have two electrical Molex connectors for the Pilot Burner Assembly. See the digram above to identify the different parts.

Start by attaching the flare & compression fittings from the Pilot Burne Assembly to the AWEIS Ignition Control Box. Make sure you are attaching the correct lines by referencing the diagram above.



Battery powered models may look completely different from their Hardwired counterpart, but they function the same way. Start with the Switch Molex & the LED/bt Molex. Ensure that the switch is set to OFF before installing the switch. The Battery Molex was already connected in the previous step.

Then start connecting the Pilot Burner Assembly by attaching the Sensor Molex and the Ignitor Terminals. One Terminal is Female and the other is Male - please make sure you are connecting the correct terminal - you should not have to apply too much force to connect them.

Finally, thread the 1/4" Flare Fitting on to the top of the AWEIS Ignition Control Box. DO NOT apply Teflon Tape or Pipe Dope to this fitting.

# 💛 + 🗰 Hardwired 24/30V & Battery Powered Models

In steps 1 - 4 we have been setting up the AWEIS itesIf - now it's time to attach everything to the pan / burner. But, in order to do that we need to talk about the actual connection from the **Control Box to the Burner via the Gas Orifice**. Each AWEIS system comes with the proper gas orifice (either Natural Gas or Propane) that was selected at the time of purchase.



With every fire feature an orifice **MUST** be installed between the outlet of the AWEIS Ignition Control Box and the burner.

When the fuel type is Natural Gas a Natural Gas Orifice is to be installed.

When the fuel type is Propane a LP Air Mixer Orifice is to be installed. The noticeable difference between these two orifices are the 6 Air Holes in the LP Air Mixer orifice.

To ensure proper operation of the LP Air Mixer Orifice it must be configured with a coupling and a pipe nipple as shown in farright photo. The Natural Gas orifice can be installed without a coupling and pipe nipple.

## Attaching to the Burner Pan

You will need to line up the Opening for the Pilot Burner with the Pilot Burner.

You will notice that the hole in the center of the pan (for the pipe nipple coming from the Ignition Control Box) and the opening for the Pilot Burner are much larger than needed. This is done to make it easier to Install the Burner Pan. The large gaps around the pipe nipple and Pilot Burner will be covered with additional parts (shown to the right side of the image).





It is recommended to use Teflon Tape or Pipe Dope on the main burner. Position the burner so that the Pilot Burner Cage is within 2 inches of the burner.

**NOTE:** Please ensure you install the burner so that the end of the spiral burner is placed up against the pilot burner. This is important to ensure proper operation of the unit.

# **AWEIS Completed Installation Diagrams**

The below diagrams are representations of a final & complete installation of an AWEIS system. The top diagram is for 24/30V Models, and the bottom diagram is for Battery Operated Models.







Do **NOT** use this appliance if any part has been under water.

Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.



## HOT! - DO NOT TOUCH - SEVERE BURNS MAY RESULT - CLOTHING IGNITION MAY RESULT!

Carefully supervise children in same area as appliance. Alert children and adults to hazards of high temperatures. Clothing or other flammable materials should not be hung or placed near the appliance

# WARNING! This appliance should be inspected before use and at least annually by a Qualified Service Technician that is Locally Licensed.

Any guard or protective device removed for servicing must be replaced prior to operation. Keep the appliance area clear and free from combustible materials, gasoline and other flammable vapors and liquids.

## 🕈 Hardwired 24/30V Models | Fire Feature Start Up

Prior to turning appliance on, visually inspect the fire feature to ensure debris such as leaves or other combustible material has not collected inside the feature which could burn and emit embers once the fire feature is turned on. Also ensure any person standing close to the fire feature is aware you will be turning the fire feature on prior to actually turning it on.

Turn the fire feature on by turning on the electrical device used to power the fire feature.

### Below is the Sequence of Operation for Hardwired 24/30V Models:

- Power is applied.
- Hot surface igniter (glow plug) becomes hot, and 4 seconds later the Pilot Gas Valve opens.
- Within 10 seconds of power application, the Pilot Flame should be visible (at night only).
- Within 10 seconds of Pilot Flame Ignition, the burner should ignite.

#### Fire Feature Shut Down for Hardwired 24/30V Models:

• Turn off the electrical device used to power the fire feature.

## Battery Powered Models | Fire Feature Start Up

Prior to turning appliance on, visually inspect the fire feature to ensure debris such as leaves or other combustible material has not collected inside the feature which could burn and emit embers once the fire feature is turned on. Also ensure any person standing close to the fire feature is aware you will be turning the fire feature on prior to actually turning it on.

Turn the fire feature on by flipping the ON/OFF Switch to the ON position.

### Below is the Sequence of Operation for Battery Powered Models:

- Switch ON: LED light begins flashing green indicating ignition is about to begin.
- Gas Valve opens and spark ignition begins.
- Ignition occurs almost immediately (assuming gas is present).

#### Fire Feature Shut Down for Battery Powered Models:

• Flip the ON/OFF Switch to the OFF position.





WARNING! Maintenance should be done by a Qualified Service Technician. The appliance should be inspected before use and at least annually.

**WARNING!** Ensure gas & power are shut off and the appliance is cool before servicing. Any guard or protective device removed for servicing must be replaced prior to operation.

## $(\diamondsuit)$ + $(\blacksquare)$ Hardwired 24/30V & Battery Powered Models

#### Prior to Each Use:

• Inspect for debris in the Fire Feature & inside the enclosure. Remove any debris prior to use.

#### Semi-Annually:

- Visually inspect Pilot Burner for debris / insect infestation (spider webs).
- Visually inspect burner holes for debris / insect infestation.
- Clean either of the above if necessary using compressed air.

#### Annually:

- Visually inspect Pilot Burner for excess corrosion due to heat and moisture.
- Turn fire feature on to ensure proper operation.

## **Troubleshooting the AWEIS Burner System**

### (ウ) Hardwired 24/30V Models Troubleshooting Guide



This QR Code will always take you to the most recent troubleshooting guide for the 24/30V Models of our AWEIS System.

You can also type in the URL directly: https://qr.devsiteview.com/g/1Tm8nVU3K23

### Battery Powered Models | LED Status Indicator Troubleshooting

The LED light incorporated in the ON/OFF Switch is programmed to indicate failure modes within the Battery Powered AWEIS System. Assuming there is a good gas source supplying gas to the feature the system should operate normally. If it does not the indications from the LED will help troubleshoot the problem. Below is a table showing the different LED Light Flash Sequences programmed into the system. Use this table to diagnose what is going on with the system.

LED Flash Sequence	Indication
G X G X G X G X	Battery is good. Fire is igniting / re-igniting
R G R G R G R G	Battery is low but usable, replace soon. Fire is igniting.
SOLID RED	Battery is too low to allow operation. Replace batteries.

LED Flash Sequence	Indication	
SOLID BLUE	Battery is critically low, turn off immediately and replace batteries.	
SOLID GREEN - AFTER IGNITION	Successful ignition; entry into Main Fire. Feature is now over 99% electrically self-powered.	
P X R X O X Y X	Ignition has failed. Will attempt re-ignition shortly. Recommend leaving on after seeing this light sequence if last fire was shutoff by the user during gas clearing delay - this will occur at startup. After a brief delay, fire will start normally.	
R X R X R X R X	Ignition has failed and no re-ignition attempts remain. Cycle ON/OFF switch to restart.	
B X B X B X B X	Controller Fault Detected. Turn Power Off - wait 30 seconds and then turn back ON to clear fault. If the flashing Blue continues to flash controller must be replaced.	

# **Replacement Parts for the AWEIS Burner System**

dentifier	Part #	Description	C1	
	PBA	Pilot Burner Assembly		
	ICB	Ignition Control Box	$\sim$ •	B
	24VAC	24VAC Transformer	20000	
	PS-30V185	30 VDC Power Supply		20000
	SPBG	Secondarily Pilot Burner Gas Line	G	1
	PPBG	Primary Pilot Burner Gas Line		
	PBO	Pilot Burner Orifice		
	PBC	Pilot Burner Cage		
	TP	PBA Thermopile		A
	HSI	PBA Hot Surface Igniter		
		Replacement Part	C2	



## **Replacement Part** Installation Indstrutions

This QR Code will always take you to the Field Serviceable AWEIS Replacement Parts Install Instructions. You can also type in the URL directly: https://qr.devsiteview.com/g/3JJk7f7KXwn

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Identifier	Part #	Description
A	BPBA	Pilot Burner Assembly
В	BPack	Battery Pack Assembly
С	BRS	Rocker Switch Assembly
D	LED	LED Light Assembly
E	BICB	Ignition Control Box



## Wiring to Pool Controller when 2 Features Turn ON at the same time 24 Volt AC Systems



## Wiring to Pool Controller when 2 Features Turn ON Separately 24 Volt AC Systems



## Wiring to Pool Controller when 2 Features Turn ON at the same time 30 Volt DC Systems



**NOTE:** In order to turn 2 or more feature ON separately, EACH fire feature requires its own 30 VDC Power supply. One 30 VDC Power Supply is shown above.

# Media Information & Installation

**WARNING!** Do not use any other material as filler/topping media inside fire features other than those listed below. Using improper media inside a fire feature could result in damage to property or injury to persons nearby due to media "popping" or "exploding" due to heat.

### List of Acceptable Media:

- Lava Rock (or other Igneous Rock) No larger than 2" in diameter.
- Fireglass approved for use in fire features.
- Man-made Stone for use in fire features (Refractory Material).

### MEDIA INSTALLATION NOTE

The use of media inside fire features is recommended due to the fact it enhances the look of the fire feature but also improves its performance by forcing the gas emanating from the burner to mix as it passes through the media. This 'mixing' of gases creates an even flame throughout the feature and helps spread the flame from the Pilot Burner throughout the burner quicker than when there is no media.

Recommended thickness of the media above the burner element is NO MORE than 2". Due to the fact the Pilot Burner must be partially exposed to oxygen in order to ignite the pilot flame during startup **DO NOT COMPLETELY COVER THE PILOT BURNER.** 

When installation of the media is complete the top of the Pilot Burner Protective Cover should be visible.

## Lava Rock Installation

The size lava rock in this visual example is 2" in diameter.

The picture on the far right is a close up of the Pilot Burner. Notice it is barely visible in either of the photos.

When using smaller lava rock you may not be able to cover it as well due to the fact the smaller rock may "smother" the Pilot Burner and prevent oxygen from getting to it.





## **Fireglass Installation**

The size fireglass used in visual example is 1/2" in diameter.

The picture on the far right is a close up of the Pilot Burner. Notice it is barely visible in either of the photos.

When using smaller fireglass you may not be able to cover it as well due to the fact the smaller rock may "smother" the Pilot Burner and prevent oxygen from getting to it.





# **Return Policy**

All orders from Fire by Design (FBD) may be returned within 30 days for a full refund. In order to return or exchange (under the warranty guidelines described in the **Fire by Design Limited Warranty** section of this instruction set) all or part of your order, you must contact us for a Return Merchandise Authorization number (RMA#). Call toll free (877) 807-8923 to obtain an RMA# from a FBD representative.

All returned merchandise must be in the original packaging including manuals, accessories, cables, etc. with the authorization (RMA#) clearly printed on the outside of the package. Return requests must be made within 30 days of the receipt date. Any shipping and/or handling charges on the original order cannot be refunded. At our discretion, we may levee a restocking fee of 15% of the cost of items returned.

FBD is not responsible for shipping costs or damage on returned items. Units to be returned should be packed carefully. Please be advised that packages sent by normal US Postal Service cannot be tracked to ensure delivery.

Since FBD cannot provide credit for a return without confirming its receipt, we recommend that you use a delivery service that can be tracked and or insured.

# Fire by Design | Limited Warranty

Fire by Design warrants its products to be free from defective material and workmanship for the period of time indicated below for each product line. The warranty time periods listed below are from the original date of purchase. Fire by Design agrees to repair or replace, at its sole discretion, a defective product if returned to Fire by Design within the warranty period and accompanied by proof of purchase. This warranty does not extend to any Fire by Design products which have been subject to misuse, neglect, accident, incorrect wiring or to use in violation of operating instructions furnished by us, nor extend to any units altered or repaired for warranty defect by anyone other than Fire by Design. This warranty does not cover any incidental or consequential damages and is in lieu of all other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our products. Some states do not allow limitations on how long an implied warranty lasts, and/or the exclusion or limitation of incidental or consequential damages so the above limitations and exclusions may not apply to the original CUSTOMER. This warranty gives you specific rights and you may also have other rights, which vary, from state to state. If you have any questions concerning this warranty call (877) 807-8923.

### **Bowls**

All Decorative Concrete and GFRC Bowls are warranted for (2) years from delivery date against any manufacturing defect or structural failure. Small stress cracks and surface crazing are a natural occurrence in concrete and not covered by warranty.

### **Fire Rings**

All Black Steel Rings are warranted for (1) year and all 304 Stainless Steel Rings are warranted for (3) years. 316 Stainless Steel Burners (Marine Grade) have a Lifetime Warranty.

### **Burner Pans**

All 304 Stainless Steel Burner Pans warranted for (5) years. All 316 Stainless Steel Burner Pans have a Lifetime Warranty.

# Electronic Ignition Systems (Field Serviceable AWEIS Mini, SC, HC, XHC, SUBEIS Mini, SC, HC, Vulcan Fire Module, Tiki Torches)

All Field Serviceable AWEIS and SUBEIS systems are warranted for (1) year from date of purchase for Commercial Applications and (3) years from date of purchase for Residential Applications provided the product has not been modified, abused, misused or improperly installed, maintained or repaired during such period. Fire by Design, at its discretion, will either repair or replace the defective product. If one of the Field Serviceable parts of an AWEIS or SUBEIS fails a replacement part will be provided at no charge to the customer. Labor cost to replace the failed field serviceable is not covered under this warranty. If a part other than a Field Serviceable part fails that part will be replaced or repaired at no charge to the customer. Vulcan Fire Modules and Automated Tiki Torches are warranted for (1) year from the date of purchase. The original purchasing information such as an invoice or product serial number is required on all warranty returns.