



# CHROMGAS™ ZERO AIR GAS GENERATOR

ZAG-3.5L | ZAG-7L | ZAG-18L | ZAG-30L User Guide



These instructions must be thoroughly read and understood before installing and operating this product. Failure to operate this product in accordance with these instructions could present a safety hazard to the user and will void the safety certification of the product.

Modification of the unit will result in voiding the warranty. If you have any questions or concerns, please call the Technical Services Department at 800-343-4048, 8AM to 5PM Eastern Time or email at [GSFsupport@parker.com](mailto:GSFsupport@parker.com) (North America only). For other locations, please contact your local representative.

Please save product packaging for future use.

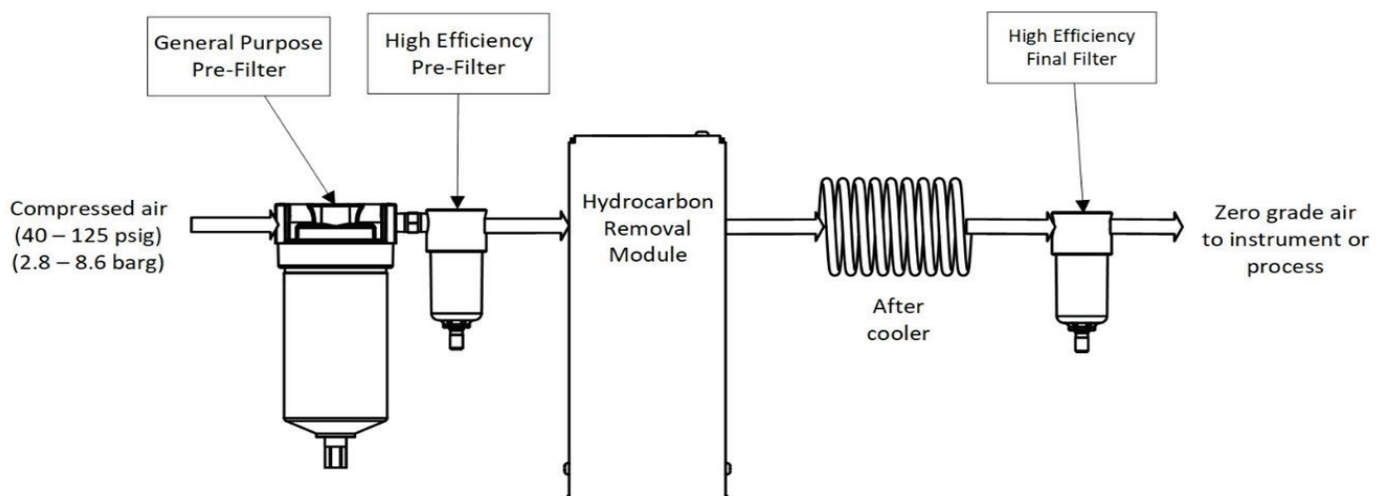


Figure 1 - Flow Schematic

## General Description

The Parker ChromGas™ Zero Air Generators (Figure 1) are completely engineered systems which replace the use of inconvenient high pressure gas cylinders as a source of hydrocarbon-free air. The ZAG-30L generators purify onsite compressed air to a total hydrocarbon level of less than 0.1 ppm (measured as methane). The ZAG-3.5L, ZAG-7L, and ZAG-18L generators purify onsite compressed air to a total hydrocarbon level less than (or equal to) 0.05 ppm, when operated at or below the unit's maximum flow rate. Zero-grade air from a Parker ChromGas™ Zero Air Generator may be used as a source of fuel air for Flame Ionization Detectors (FIDs) or as a zero reference for any instrument which measures hydrocarbon concentration.

The Parker ChromGas™ Zero Air Generators have been certified to the electrical safety requirements as specified by the IEC, CSA and UL standards. These units bear the Intertek

(ETL) marking on the product label and comply to US and Canadian Standards. All products carry the CE and UKCA marks (220 VAC units only) and comply to EMC standards. This unit has a pollution grade of 2 intended for the environment.

## Engineered System

The Parker ChromGas™ Zero Air Generator is comprised of four functional component groups: prefiltration, hydrocarbon removal, cooling, and final filtration (see Figure 1).

The Parker ChromGas™ Zero Air Generator is equipped with a 7 in. color touch screen on the front panel to show operational status as well as any errors or maintenance reminders. During normal operation, the home screen will display the operating pressure and the hydrocarbon removal module temperature as shown in Figure 2. Any errors that may occur or any maintenance reminders will show up at the top of the home screen.

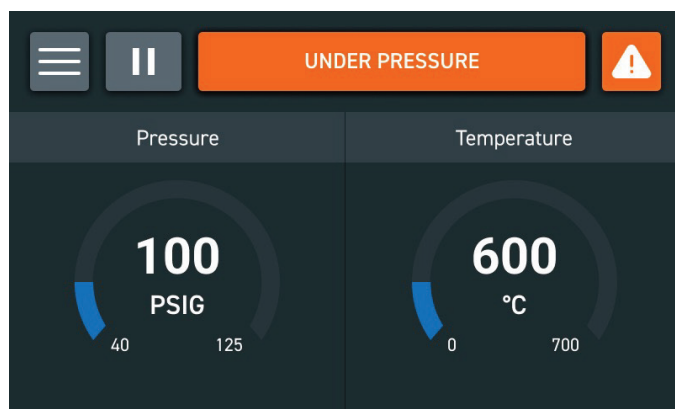


Figure 2 - Typical Home Screen

## Alarm Limit Control (internal)

Inside the ZAG unit, there is a digital readout indicating the catalyst module temperature. It is part of the electrical safety circuitry that is required to meet the UL laboratory safety standard. If a failure of the control circuit board or the electrical heater occurs, the limit controller will prevent the temperature of the hydrocarbon removal module from reaching an extremely high temperature and potentially causing further damage to the unit or the surroundings.

## Dimensions

The overall dimensions of the generator are shown below in



Figure 3 - Overall Dimensions

Dimension	Units	ZAG-3.5L, ZAG-7L, ZAG-18L, & ZAG-30L
H	in (mm)	17.2 (437)
W	in (mm)	13.5 (343)
D	in (mm))	15.5 (394)

## Prefiltration

Two stages of high efficiency coalescing prefiltration are incorporated into the Parker Chromgas™ Zero Air Generator to protect the catalyst bed from potential oil and particulate contamination. The pre-filters are located on the back side of the unit. They remove liquids and particulate matter from the incoming air supply down to 0.01 micron. The first coalescing filter is equipped with a float drain that will automatically drain any liquids from inside the filter housing if they accumulate. The drain is connected to a 1/4" O.D. plastic tubing which discharges to atmosphere on the back side of the generator.

## Hydrocarbon Removal

The catalyst module is a stainless-steel vessel filled with catalyst and assembled with a cartridge heater that is maintained at approximately 600 degrees Celsius. During operation, any hydrocarbons that enter the catalyst module are fully oxidized to carbon dioxide and water vapor. The control circuitry maintains the catalyst bed at the optimal temperature to insure complete combustion of any hydrocarbon that are present. If the heater should fault during operation, a warning message will appear on the color touch screen on the front panel.

## Cooling

The Parker Chromgas™ zero air generator is equipped with a stainless-steel aftercooler and fan to cool the hot outlet air from the hydrocarbon removal module before the gas stream enters the final filter.

## Final Filtration

Before leaving the Parker Chromgas™ zero air generator, the purified air stream is passed through a Balston Grade GS membrane filter that removes any particulate contamination down to 0.01 micron (absolute).

# INSTALLATION

All installation procedures for Parker Chromgas™ Zero Air Generators should be performed by suitable personnel using reasonable care.

## General

The Parker Chromgas™ Zero Air Generator is a free-standing benchtop unit. When connecting a source of compressed air to the inlet of the generator, a shut-off valve and a pressure regulator should be installed directly upstream. The shut-off valve isolates the unit from the air line for maintenance and troubleshooting tasks. The pressure regulator controls the inlet air pressure and should be set to maintain a constant pressure between 40 psig and 125 psig (2.8 barg and 8.6 barg). Maintaining a constant inlet air pressure will minimize any system pressure fluctuations. Parker offers a pressure regulator, complete with a pressure gauge, as an accessory (P/N 72-130-V883). Refer to Figure 4 for a recommended installation. It is also recommended to install a shut-off valve at the outlet of the zero air gas generator.

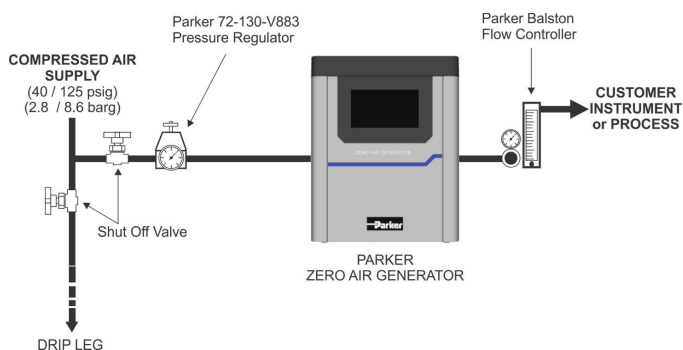


Figure 4 – Recommended Installation

## Location

The Parker Chromgas™ Zero Air Generator should be installed in an area relatively free from excessive dust and dirt, where the ambient temperature is between 60°F and 100°F (16°C and 43°C). **Do not install the generator outdoors.** There is no limit to the distance between the generator and the point of use as long as tubing type, size, cleanliness, and pressure drop are taken into consideration. Approximately 6" of space should be allowed along the top and back of the generator to ensure proper ventilation. Refer to Figure 5 for the REAR view of the generator with all of the required connections.

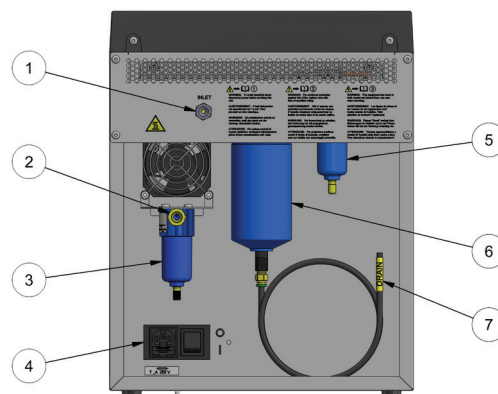


Figure 5 - Rear View

1	Compressed Air Inlet
2	Zero Air Outlet
3	Final Filter
4	AC POWER RECEPTACLE / SWITCH / FUSE
5	Secondary Inlet Filter
6	Primary Inlet Filter
7	Drain Tube

## Utilities – Compressed Air

The Parker Chromgas™ Zero Air Generator requires a source of clean, dry compressed air (40 -125 psig/2.8 - 8.6 barg) for optimal operation. The air should be as close to instrument quality as possible and supplied at a flow rate and pressure above those required at the point of use. The temperature and/or dewpoint of the supply air should be at room temperature (or lower), and the air should be relatively free of compressor oil, hydrocarbons, and particulate matter. Contamination of the catalyst bed may occur if it is exposed to certain compounds (warning below). To prevent premature contamination of the catalyst module, the inlet to the compressed air supply compressor should be vented outdoors so that it can obtain fresh air.

**Chlorinated hydrocarbon compounds and chlorofluorocarbons (or freons) will permanently contaminate the hydrocarbon catalyst module in the Zero Air Generator. Extreme care should be taken when specifying an air supply for the generator to ensure that these compounds are not present in the air supply nor likely to get into the compressor providing air to the generator.**

The hydrocarbon catalyst module can also be contaminated by high concentrations of lead, sulfur, or phosphorous compounds, heavy metals, and long chain polymers. Care should be taken to avoid introducing these compounds into the Zero Air Generator. Specifically, assure that none of these compounds are stored near the inlet to the compressor supplying the system with compressed air. The intake for the compressor should be vented to the outdoors if at all possible, to guarantee that it receives a source of clean fresh air.

Connect the compressed air supply to the 1/4" NPT (female) inlet port on the back side of the generator marked "inlet".

## Power

The Parker Zero Air Generator may be operated by a supply of: 120 VAC 50/60 Hz (NA Models) or 220 VAC 50/60 Hz (WD Models). Main supply voltage fluctuations must be within  $\pm 10\%$  of the nominal main supply voltage. To connect the generator to the power supply, simply plug the female end of the electrical cord set into the receptacle on the back side of the generator, and the opposite end into a three-pronged earthed power receptacle. NA models ship with a US cord set. WD models ship with both a EU and UK cord set. For other cord set options, contact Parker.

## Piping Components

The inlet and outlet ports for the Parker Chromgas™ Zero Air Generator are 1/4" NPT (female) and located on back side of the unit. Inlet tubing and fittings should be clean and rated for 125 psig (8.6 barg), minimally. The tubing and fittings used downstream from the Zero Air Generator should be clean stainless steel or pre-cleaned refrigeration-grade copper (for example, 1/8" OD or 1/4" O.D. x .030" wall) and rated for 125 psig (8.6 barg). **Do not use plastic tubing downstream from the generator.** Outgassing from plastic may contaminate the zero-grade air. In addition, if the unit is overflowed or the internal cooling fan fails, the outlet gas could easily exceed the temperature rating of plastic tubing. Use only PTFE tape on all inlet and outlet NPT fittings. Thread sealing compounds often contain hydrocarbons and may contaminate the zero-grade air produced by the generator.

If pre-cleaned copper tubing is unavailable, standard copper tubing may be cleaned by the customer. First, connect the tubing to a supply of clean inert gas (N<sub>2</sub>, He). Next, initiate the gas flow through the tubing (5-10 cc/min.). Finally, heat the tubing with a propane torch, moving the flame at a rate of approximately 1/2 in./sec. in the direction of flow. This procedure removes waxes and oils used in the manufacture of copper tubing.

**NOTE: The use of plastic piping components or copper piping components which are not refrigeration grade will result in the Zero Air Generator failing to meet the required purity specifications.**

## Drain Lines

The 1/4" diameter plastic drain line on the back side of the generator (marked with a yellow "Drain" label) should be connected to an appropriate collection container. The liquid in this drainage will consist of water and possibly compressor oil which should be disposed of in accordance with local environmental regulations.

## Recommended Accessories

### Pressure Regulator

To control the supply air pressure to the Zero Air Generator, a pressure regulator is needed. The 72-130-V883 Pressure Regulator is a pressure regulator with 1/2" NPT inlet and outlet ports, assembled with a pressure gauge. For more information, please contact your local representative and request the Gas Management Supplies Catalog.

### Flow Controller

If the output capacity of the Zero Air Generator is exceeded, the hydrocarbon content of the emergent gas may not meet specified levels. To ensure zero air purity, it is recommended that a flow controller designed for high purity applications be installed downstream from the generator (if one is not integral to the GC design). The Parker Flow Controllers provide accurate flow rate control of the zero-air stream. To determine which flow controller best meets the needs of the application, please contact your local representative and request the Gas Management Supplies Catalog. A mass flow meter could also be installed in the zero air gas stream to determine the precise flow of zero-grade air from the generator. A wide variety of mass flow meters can be purchased from Parker's Precision Fluidics Division. Some method of precise flow control is needed at the outlet of the gas generator to prevent the maximum flow rate from being exceeded during use. If the maximum flow rate of the generator is exceeded for extended periods, a warning message may appear on the display indicating an overflow condition. If this occurs, it could mean that an external leak has developed or the equipment using the zero air is drawing too much flow. In this case, the outlet flow must be reduced below the maximum rated flow in order to maintain outlet hydrocarbon specifications.

### 76080 Halogenated Hydrocarbon Scrubber

If the compressed air supply to the generator is subject to contamination from halogenated hydrocarbons, install a halogenated hydrocarbon scrubber directly upstream from the generator. Exposure of the generator to halogenated hydrocarbons will damage the catalyst module and void the warranty. For additional information, please contact our factory or your local Parker representative.

# OPERATION

## Startup

Before startup, reference the Installation section of this user manual. Slowly open the inlet compressed air supply valve (customer supplied) and adjust the inlet pressure to between 40 psig and 125 psig (2.8 barg and 8.6 barg) using a (customer installed) pressure regulator. Adjust the outlet flow using a (customer installed) flow controller. Set the flow to the required flow rate for the instrument or application but do not exceed the maximum rated flow rate of the ZAG model that you are using. (see Specifications section at the end of this bulletin for generator flow capacities). **Check delivery system for leaks.** Finally, turn the generator on using the power switch on the back the unit. The generator will bootup and display "Initialization." The Color LCD front panel of the Parker Chromgas™ Zero Air Generator gives the operator instantaneous feedback regarding system function. Any errors that may occur, or maintenance reminders, will appear at the top of the display screen.

The generator will go into a 60-minute warm-up period to allow the catalyst module to reach operating temperature and stabilize. Once this is function is completed, the Parker Chromgas™ Zero Air Generator is ready to be brought online and supply zero-grade air to downstream analytical equipment. The normal operating temperature for the catalyst module is approximately 600 degrees C as will be shown on the right-hand side of the display (see Figure 2). The operating pressure will also be shown on the left-hand side of the display and should be between 40 and 125 psig under normal operating conditions. If the pressure is not within this range, adjust any external controls to ensure the pressure is within the allowable operating range of 40-125 psig. If the inlet pressure is too low (< 40 psig), an orange warning message will appear at the top of the display as shown in Figure 2 ("UNDER PRESSURE"). If the inlet compressed air pressure is outside of the 40-125 psig range, the generator will continue to operate but the supply pressure should be checked and adjusted to be within the recommended acceptable range. However, during startup, the catalyst module will not begin to heat up if the pressure is below 40 psig at the inlet to the generator. An audible beeping will be heard if the inlet pressure is below 40 psig. The inlet pressure must be greater than 40 psig for the generator to begin heating up.

To prevent excess demand on the Chromgas™ generator, a flow control device must be used downstream of the unit. If system leaks downstream of the generator develop, the rated flow may be exceeded. Exceeding the rated flow for extended periods (i.e. more than 5 minutes), the system may issue a warning message at the top of the display screen indicating an "overflow" condition. During overflow conditions, the hydrocarbon content of the generated gas may exceed 0.1 ppm if any significant hydrocarbons are present in the feed compressed air.

**NOTE: To ensure hydrocarbon content of less than 0.05ppm or 0.1ppm (depending on model), do not overflow the unit. The total output flow must be less than the rated flow for the model you are using or the specification may not be met.**

## Shutdown

To shut down the Parker Chromgas™ Zero Air Generator, it is recommended to cease all air flow through the unit before turning off the power switch. This can be accomplished by shutting the outlet valve to stop all air flow through the generator. Alternatively, the user can hit PAUSE on the main screen until the temperature has cooled to less than 100 degrees C. Once the unit has cooled down, simply turn the power switch to the off position and turn off the compressed air supply to the generator.

## Maintenance

All maintenance procedures for Parker Chromgas™ Zero Air Generators should be performed by suitable personnel using reasonable care.

Prior to servicing the Parker Chromgas™ Zero Air Generator, turn off the compressed air and power supplies to the generator, and ensure that the system is fully depressurized and cool.

To ensure consistent product performance and reliability use only genuine Parker Chromgas™ replacement parts and filter cartridges.

Refer to Figure 6 for a list of maintenance items that can be purchased for the Chromgas™ ZAG.

The primary maintenance tasks required by the Parker Chromgas™ Zero Air Generator are changing the prefilter cartridges (annually), replacing the final membrane filter cartridge (annually), and replacing the catalyst module (Every 24,000 hrs or 3 years). A maintenance reminder will appear at the top of the screen on the main display 30 or 90 days prior to service becoming due. The filter cartridges can be replaced WITHOUT removing the cover and heat shield.

## Replacing Filter Cartridges

**Refer to Figure 5 that shows the three filter assemblies on the back of the ZAG unit that should be replaced annually. Item 3 is the final filter, Item 6 is the primary pre-filter, and item 5 is the secondary pre-filter.** To replace the filter cartridges, the system should first be shut down and de-pressurized. Next, simply unscrew the filter "bowls" by grasping the outside of the filter assembly and turning it counterclockwise until the bowl becomes totally detached from the "head" and the internal filter cartridge is exposed. If the filter bowl is too tight, you can try using a tool such as

a strap wrench or a channel lock pliers with the jaws covered with duct tape or cardboard so that the paint or power coating on the filter bowl is not damaged. Once the filter bowl is removed, unscrew the filter cartridge “retainer” at the bottom and carefully remove the filter cartridge/element.

Parker Chromgas™ filter cartridges are sealed in place by compression against a flat surface. Gaskets are not required between the filter cartridge and the filter housing. The filter cartridge is centered by guides on the housing which fit the inside diameter of the cartridge at each end. In most filter housing designs, the filter cartridge is sealed by tightening a threaded element retainer on a tie rod. Do not use excessive force or tools on the element retainer. The filter cartridge is securely sealed by tightening the element retainer 1-1/2 to 2 turns after it first contacts the filter cartridge. Re-install the filter “bowl” by carefully threading it into the filter “head” and tighten handtight by turning clockwise. Once the system is pressurized again, it is advisable to leak check the filter bowls by spraying leak test fluid near the filter bowl threads and check for bubbles.

Once filter cartridge maintenance has been performed, the filter service timer should be reset. Once the system is turned back on and powered up, refer to Figure 12 to reset the service timers. Step 1: From the main screen, click on the three lines icon in the upper left-hand corner. This will display the main menu. Next, click on the “service” button on the right-hand side (with lock icon). A popup box will ask for a password. Enter the password that was included with your maintenance kit. This will bring up the service menu. Click on “Reset Filter Service Timing” to reset the filter service timer. The system will ask once or twice to confirm timer reset.

## Replacing Catalyst Module

In order to replace the catalyst module, it is necessary to remove the cover of the ZAG unit, the internal heat shield, and the front bezel. Refer to Figure 7 and 8 and use the 1/8 in. allen wrench (supplied with maintenance kit) to remove the necessary screws.

**NOTE: Allow the unit to cool for at least 2 hours before removing the cover, heat shield, and front bezel to service the catalyst module.**

The tools required to change the catalyst module are: 1/8 in. allen wrench (supplied), an 11/32 in. nut driver, a small flat head screwdriver (1/8 in. or 3 mm.), two small adjustable wrenches or one 9/16 in. wrench and one adjustable wrench.

1. Referring to Figure 7, first remove the cover by removing the screws located at locations A and B using the 1/8 in. allen wrench. Gently slide the cover to the rear (approx. 1/4 in.) and lift up while keep the cover horizontal.
2. Referring to Figure 7, secondly, remove the front bezel by removing the screws located at locations C & D. Gently lift the bezel up slightly (approx. 1/4 in.) and move forward until the bezel comes free. Carefully lean the front bezel against the right side of the unit.

3. Referring to Figure 9, carefully remove the five (5) screws holding the heat shield in place to the chassis. Lift the heat shield out and set it aside.
4. Referring to Figure 9, using two wrenches (one as an anchor to hold the elbow), disconnect the catalyst module at the inlet and outlet fittings at the elbow (A & B Figure 9 & 10). **Leave both elbows on the module.**
5. Remove the washer and KEP nut (11/32) at the base of the module (C in Figure 9 & 10).
6. Disconnect the Molex connector (D in Figure 9 & 10) by holding down the tab and pulling the two connectors apart.
7. Remove the KEP nut from the ground connection at the back (E in Figure 9 & 10) and remove the ring terminal that is part of the catalyst module wiring harness.
8. Referring to “F” in Figures 10 & 11, use the small flat head screwdriver and fully loosen the two thermocouple wires at terminals #1 & #2 of the digital limit controller.
9. Lastly, disconnect the connector at the circuit board by grasping firmly with a finger on each side and pulling straight back.
10. Remove the spent module from the Zero Air Generator and set aside.
11. Re-connect the replacement catalyst module by reversing the removal procedure:
  - a. Plug in connector at control board.
  - b. Re-install the two thermocouple wires to terminals #1 & #2 of the digital limit controller (yellow wire is terminal 1 +ve positive and red wire is negative, terminal #2 – see Figure 10).
  - c. Re-install the ring terminal (ground wire) at location E at the back of the chassis and tighten the 10-32 KEP nut using the 11/32 nut driver.
  - d. Plug in the 9-pin Molex connector to the mating connector at location D (Figure 9 & 10).
  - e. Slide the catalyst tower module into the zero air generator and lock the rear base to the chassis by sliding it under the tab on the chassis. The notch at the front should go over the stud on the chassis, Replace the washer and 10-32 KEP nut and tight **ONLY FINGER TIGHT.**
  - f. Guide the compression nuts on to the elbows of the catalyst module at locations A & B (see Figure 9 & 10) at the top of the catalyst tower and tighten finger tight. Use the two wrenches (one holding the elbow) and tighten the compression nuts.
  - g. Lastly, tighten the 10-32 KEP nut at the base of the tower using the 11/32 nut driver.
12. **NOTE: Prior to replacing the heat shield, front bezel, and cover, the system should be checked for leaks by opening the compressed air supply to the unit. Use a soap or leak detecting solution to check the integrity of the piping and fittings.**

13. Once the system has been confirmed to be leak tight, replace the internal heat shield using the five allen screws. Next, re-install the front bezel and secure using the two allen screws. Lastly, install the cover and secure at the back using the remaining two allen screws.
14. The unit can now be plugged back in and restarted as per the start-up instructions described previously in this manual.
15. Once catalyst module cartridge maintenance has been performed, the catalyst service timer should be reset. Once the system is turned back on and powered up, refer to Figure 12 to reset the service timers. Step 1: From the main screen, click on the three lines icon in the upper left-hand corner. This will display the main menu. Next, click on the "service" button on the right-hand side (with lock icon). A popup box will ask for a password. Enter the password that was included with your maintenance kit. This will bring up the service menu. Click on "Reset Catalyst Service Timing" to reset the catalyst service timer. The system will ask once or twice to confirm timer reset.

Replacement prefilter cartridges, final filter replacement cartridges, and catalyst modules may be ordered through a local representative. For convenience, a one-year supply of these replacement filter cartridges has been assembled into a maintenance kit (P/N MKZAG-1). The kit contains one first stage coalescing prefilter cartridge (P/N 6C10-025), one second stage coalescing filter cartridge (P/N 050-05-BX), and one Grade GS final membrane filter (P/N GS-050-05-95). Refer to Figure 12 for a table of replacement parts. Filter cartridges can be purchased in boxes of eight or ten by ordering the part numbers shown in the table. Depending on the model of zero air generator you have, you can order a replacement catalyst module by referring to the part number shown in Figure 6 for your model.

**If necessary, the Zero Air Generator may be wiped clean with a dry cloth on an as needed basis. Do not use water, aerosols, or other cleaning agents to clean the units. Use of any liquid detergent to clean the generator could present an electrical hazard.**

## TROUBLESHOOTING

### WARNING

All troubleshooting and service activities should be performed by suitable personnel using reasonable care.

Symptom	Course of Action
No flow from generator	<p>Check drains on prefilters</p> <ul style="list-style-type: none"> <li>- Close (customer installed) inlet air valve and depressurize generator. Re-open valve. If drain is still leaking,</li> <li>- Remove drain tubing and hold finger over drain opening to allow pressure to build within housing. Quickly remove finger and see if drain seals.</li> <li>- Remove bowl from filter and rinse with warm water (after closing inlet air valve and depressurizing generator.</li> <li>- Replace automatic drain, P/N 21552</li> </ul> <p>Unplug generator, remove cover, front bezel, and internal heat shield and check for internal leaks.</p>
Low pressure at outlet	<ul style="list-style-type: none"> <li>- Check inlet pressure. Pressure drop up to 4 psid (0.3 bar) is normal. Minimum inlet pressure is 40 psig (2.8 barg). If inlet pressure is below 40 psig, the unit should be displaying an "Under pressure".</li> <li>- Check outlet flow demand and see if unit is displaying an "Overflow" error. Flow demands well in excess of rated capacity for more than about 5 minutes will cause higher pressure drop through generator, as well as cause an "over flow" error to occur. An overflow error will not cause the generator to shut down, however, significantly exceeding the rated capacity may cause the output hydrocarbon concentrations to exceed the specified minimum levels for the model generator.</li> <li>- Check generator for leaks.</li> </ul>

Symptom	Course of Action
Overflow error (on display)	<ul style="list-style-type: none"> <li>- Check downstream flow demand. If flow capacity of generator is exceeded, an “Overflow” error message will appear on the main display. An excessive pressure drop (greater than 4 psig/0.3 bar) may accompany an overflow situation.</li> <li>- If demand exceeds capacity, install a flow controller downstream from the generator to insure the rated capacity of the generator is not exceeded.</li> </ul>
No Power	<ul style="list-style-type: none"> <li>- Check power switch to ensure generator is turned on.</li> <li>- Check that the generator cord is firmly connected to the wall receptacle and the power receptacle on the unit.</li> <li>- Check the generator fuse. <ul style="list-style-type: none"> <li>• Unplug generator cord from wall and generator receptacle.</li> <li>• Using a small screwdriver, open the fuse drawer and check the fuse. The fuse being used is towards the back. There is a spare fuse located in the front.</li> <li>• Change fuse if necessary</li> </ul> </li> <li>- <b>Warning:</b> for continued protection against the risk of fire, replace only with fuse of specified rating.</li> </ul>
Overtemp (on display)	Catalyst tower exceeded the upper limit. Possibly a defective controller. Remove the front bezel and look at limit controller display. If the catalyst temperature was exceeded, the digital display on the limit controller should be alternately flashing “AL” and a digital temperature reading. Consult technical support.
Undertemp (on display)	<ul style="list-style-type: none"> <li>- Could be a defective or burnt-out heater rod.</li> <li>- Consult technical support.</li> </ul>
Sensor error (on display)	Thermocouple not reading correctly. Could be bad thermocouple wire connections. Unplug unit. Remove cover, heat shield, and front bezel and inspect thermocouple wiring for loose connections.
Bus failure (on display)	Can be related to bad thermocouple connections. Unplug unit. Remove cover, heat shield, and front bezel and inspect thermocouple wiring for loose connections.
Communication failure (on display)	The cable connecting the LCD display PCB to the control PCB could be loose or defective. Unplug unit. Remove cover and front bezel and inspect cable “H” as shown in Figure 9. Check for loose wires. Unplug and reconnect cable. Consult technical support if problem continues.
Under pressure (on display)	The inlet pressure is less than 40 psig. The system will not operate unless the inlet pressure is at least 40 psig. Check inlet compressed air plumbing and any pressure regulators upstream and ensure that the system is being supplied with compressed air at a pressure of at least 40 psig.
Over pressure (on display)	The inlet pressure is greater than 125 psig. The system will not operate if the inlet pressure is greater than 125 psig. Use an inlet pressure regulator to reduce the inlet compressed air pressure so that it does not exceed 125 psig.

## Optional Accessories

Model Number	Description
W-405-4032-000	Pressure Regulator
W-FM Series	Flow Controllers
76080	Halogenated Hydrocarbon Scrubber

## System Specifications

	ZAG-3.5LNA / ZAG-3.5LWD	ZAG-7LNA / ZAG-7LWD	ZAG-18LNA / ZAG-18LWD	ZAG-30LNA / ZAG-30LWD
Max flow rate	3.5 lpm	7 lpm	18 lpm	30 lpm
CSA Certification Standard	CSA C22.2 61010-1-12:2012, CSA C22.2 61010-2-010:2019			
IEC Safety Standard	IEC 61010-1:2010, IEC 61010-1:2010/AMD1:2016, IEC 61010-2-010:2019			
UL Safety Standard	UL 61010-1:2012, UL 61010-2-010:2019			
Total hydrocarbon content	<0.05 ppm	<0.05 ppm	<0.05 ppm	<0.1 ppm
IEC 61010 Installation	Category II			
IEC Pollution	Degree 2			
Min/Max inlet pressure	40 psig/125 psig 2.8 barg / 8.6 barg	40 psig/125 psig 2.8 barg / 8.6 barg	40 psig/125 psig 2.8 barg / 8.6 barg	40 psig/125 psig 2.8 barg / 8.6 barg
Min/Max ambient temperature	60°F/100°F (16/38°C)	60°F/100°F (16/38°C)	60°F/100°F (16/38°C)	60°F/100°F (16/38°C)
Max relative humidity	80%	80%	80%	80%
Max inlet hydrocarbon content	100 ppm	100 ppm	100 ppm	100 ppm
Pressure drop at max flow rate	4 psid (0.3 bar)	4 psid (0.3 bar)	4 psid (0.3 bar)	4 psid (0.3 bar)
Start-up time	60 min.	60 min.	60 min.	60 min.
Electrical requirements	"NA" Models: 120 VAC - 50/60Hz   "WD" Models: 220 VAC - 50/60Hz   ±10% nominal			
Current rating	4.5 A @ 120VAC, 2.5 A @ 220VAC			
Shipping weight	50 lbs. (22.7 kg)	50 lbs. (22.7 kg)	50 lbs. (22.7 kg)	50 lbs. (22.7 kg)
Physical dimensions	17.2"H x 13.5"W x 15.5"D 44cm H x 34cm W x 39 cm D	17.2"H x 13.5"W x 15.5"D 44cm H x 34cm W x 39 cm D	17.2"H x 13.5"W x 15.5"D 44cm H x 34cm W x 39 cm D	17.2"H x 13.5"W x 15.5"D 44cm H x 34cm W x 39 cm D
Altitude	2000 m	2000 m	2000 m	2000 m
Fuse Type	250V, 2A	250V, 2A	120VAC: 250V, 4A 220VAC: 250V, 2A	120VAC: 250V, 4A 220VAC: 250V, 2A

Description	Part Number	Model(s)	Kit Contents
12 month Kit	MKZAG-12M	All ZAG Models	Replacement filter elements
36 month Kit	MKZAG-3.5LNA-36M	ZAG-3.5LNA	Replacement filter elements, Replacement catalyst module (120V)
	MKZAG-7LNA-36M	ZAG-7LNA	
	MKZAG-18LNA-36M	ZAG-18LNA	
	MKZAG-30LNA-36M	ZAG-30LNA	
	MKZAG-3.5LWD-36M	ZAG-3.5LWD	Replacement filter elements, Replacement catalyst module (220V)
	MKZAG-7LWD-36M	ZAG-7LWD	
	MKZAG-18LWD-36M	ZAG-18LWD	
Preventive Maintenance Plan (12 Month)	MKZAG-30LWD-36M	ZAG-30LWD	Service by Certified Technician. Includes 12 month service kit. Consult Parker for details.
	ZAG-3.5LNA-PM	ZAG-3.5LNA	
	ZAG-7LNA-PM	ZAG-7LNA	
	ZAG-18LNA-PM	ZAG-18LNA	
Preventive Maintenance Plan (36 Month)	ZAG-30LNA-PM	ZAG-30LNA	Service by Certified Technician. Includes 12 & 36 month service kits. Consult Parker for details.
	ZAG-3.5LNA-PMPLUS	ZAG-3.5LNA	
	ZAG-7LNA-PMPLUS	ZAG-7LNA	
	ZAG-18LNA-PMPLUS	ZAG-18LNA	
Extended Warranty Plans			Consult Parker for Options

Figure 6 - Maintenance Items

## Don't Forget To:

- 1 To activate your warranty, go to <https://discover.parker.com/agswarranty>
- 2 Keep your product certification in a safe place.
- 3 Call the Technical Services Department at 800-343-4048, 8AM to 5PM Eastern Time with any questions, or email at [GSFsupport@parker.com](mailto:GSFsupport@parker.com). For other locations, please contact your local representative.

## Serial Numbers:

The serial number label for the unit is located on or near the product label. For your own records, and in case service is required, please record the following:

DATE IN SERVICE: \_\_\_\_\_ SERIAL NO. \_\_\_\_\_

**Please have the serial number available when calling for assistance.**

### WARRANTY (NORTH AMERICA ONLY)

**(FOR INFORMATION CONTACT YOUR LOCAL REPRESENTATIVE)**

Parker Hannifin guarantees to the original purchaser of this product, that if the product fails or is defective within 12 months from the date of purchase, when this product is operated and maintained according to the instructions provided with the product, then Parker guarantees, at Parker's option, to replace the product, repair the product, or refund the original price for the product. This warranty applies only to defects in material or workmanship and does not cover: ring and valve wear on compressors, routine maintenance recommended by the instructions provided with this product, or filter cartridges. Any modification of the product without written approval from Parker will result in voiding this warranty. Complete details of the warranty are available on request. This warranty applies to units purchased and operated in North America.

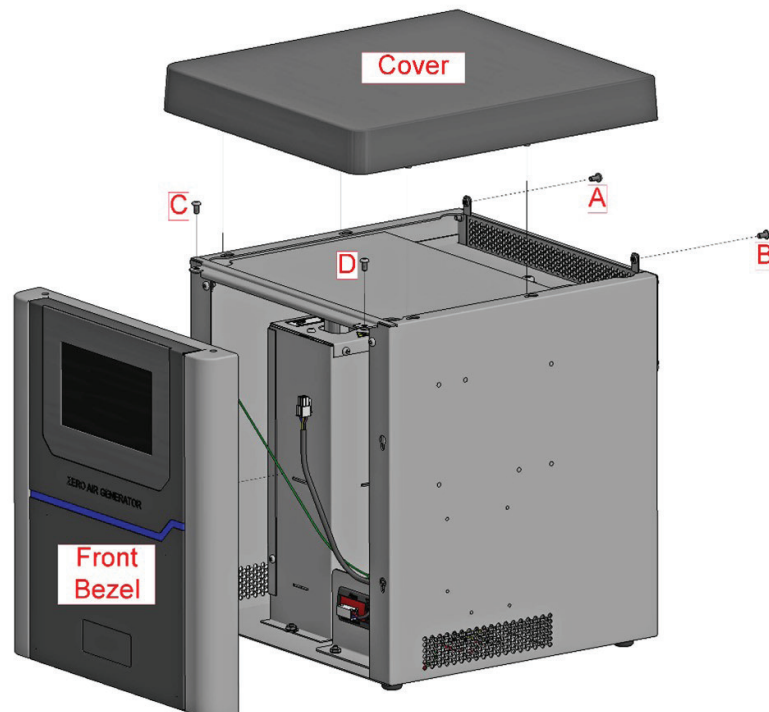


Figure 7 - Removing Cover and Front Bezel

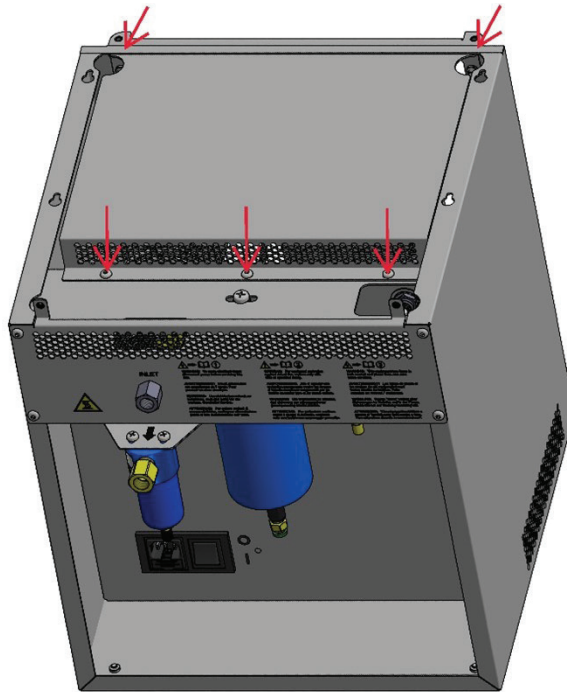


Figure 8 - Removing Internal Heat Shield

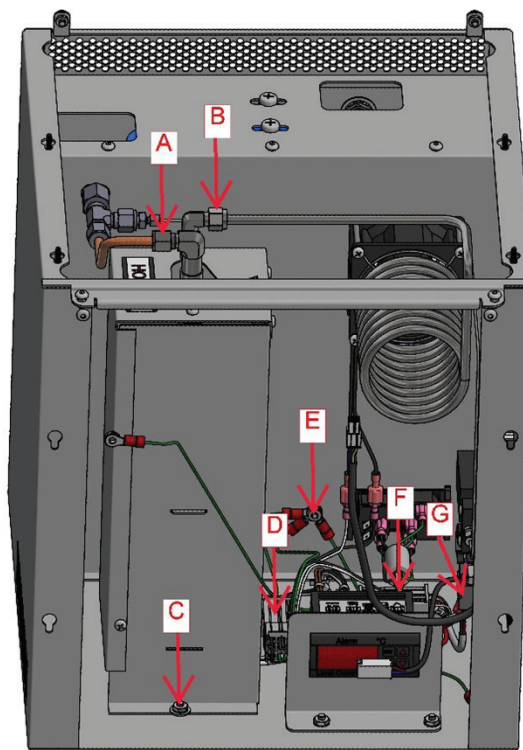


Figure 9 - ZAG Internals with Cover, Internal Heat Shield, and Front Bezel Removed

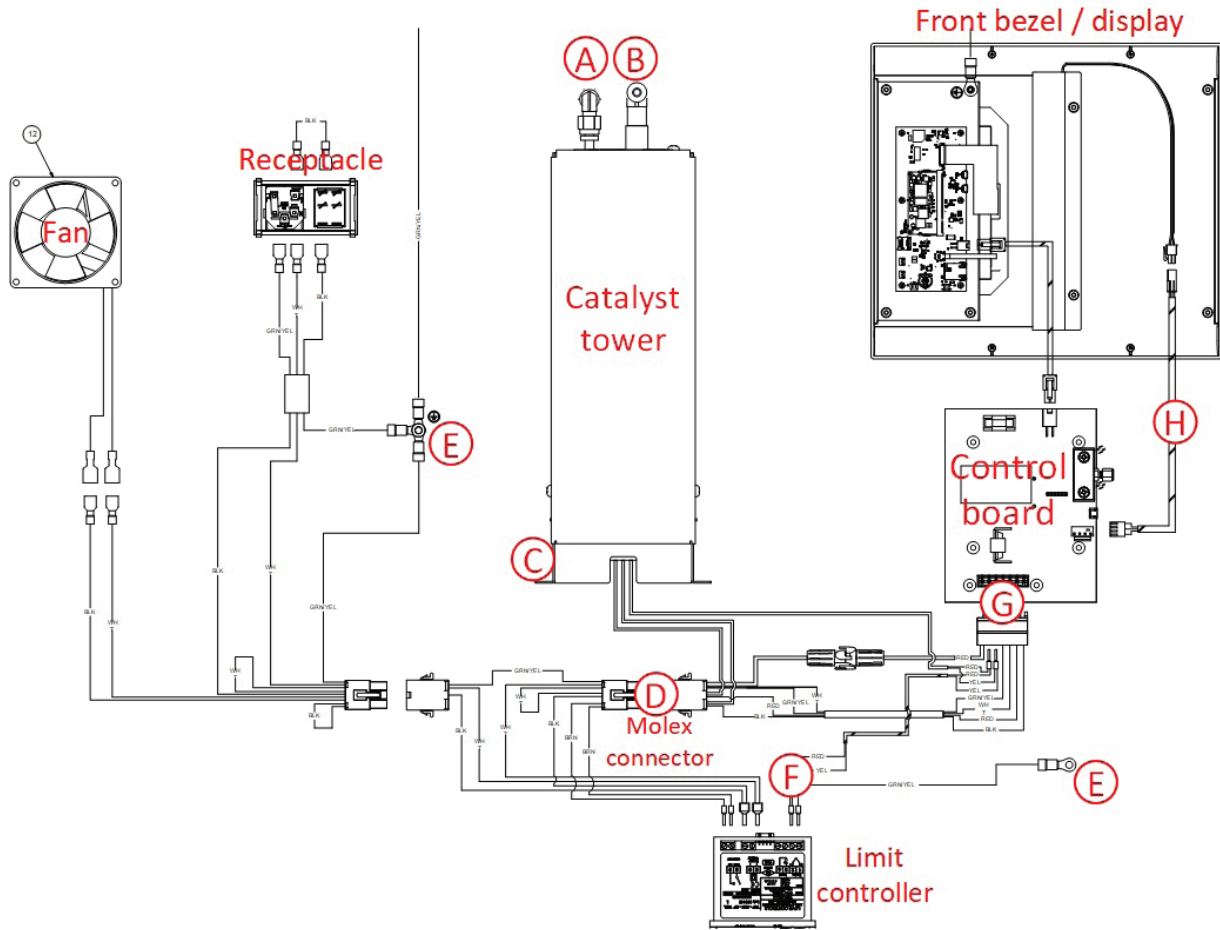


Figure 10 - Zero Air Generator - Electrical Schematic

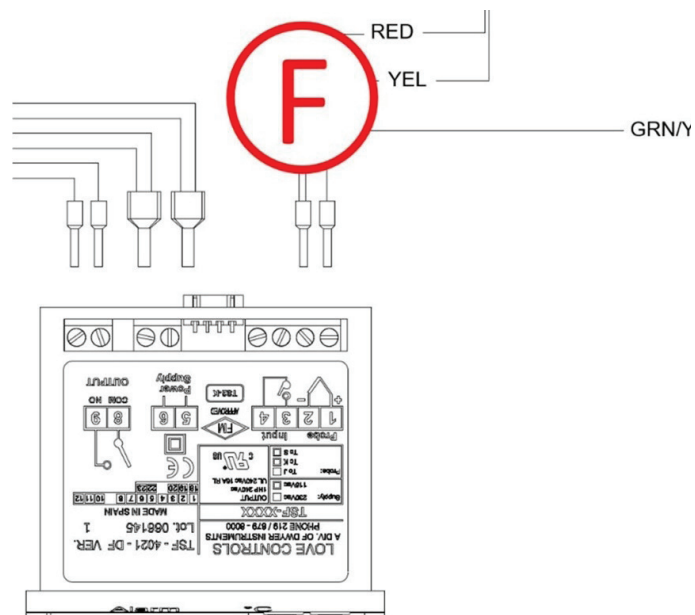


Figure 11 - Thermocouple wires on Limit Controller

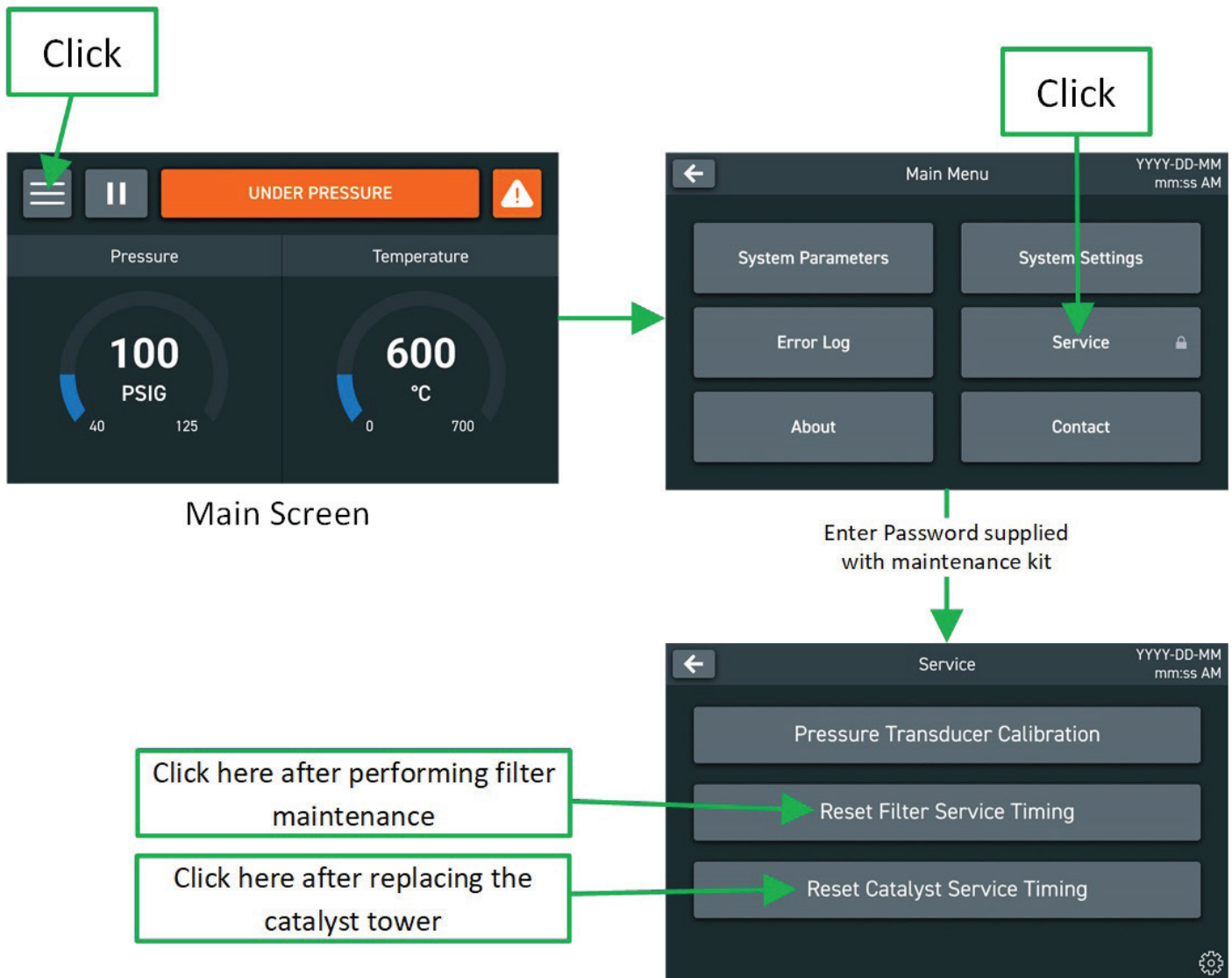


Figure 12 - Resetting Service Timers





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TI-ZAG-001 Rev-

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