



ALIGN™

High-Flow Multi-Gas Generator

Installation, Operation, and Maintenance Manual



ENGINEERING YOUR SUCCESS.

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1. WARRANTY

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: wear components 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 in North America.

COMPRESSOR LIMITED WARRANTY

COMPRESSOR 3 YEAR / 10,000 HOUR EXTENDED PARTS LIMITED WARRANTY -

Compressor Manufacturer warrants each Compressor Pump or Scroll Air-End against defects in material or workmanship from the date of purchase for a period of Three years or 10,000 hours, whichever may occur first. This warranty applies to the exchange of part(s) of the compressor pump or air-end found to be defective by an Authorized Service Center.

COMPRESSOR 1 YEAR / 5,000 HOUR INLET TO OUTLET LIMITED WARRANTY -

Compressor Manufacturer warrants each Compressor Unit, System, Pump, or Air-End against defects in material or workmanship from the date of purchase for a period of One Year or 5,000 Hours, whichever may occur first. This warranty applies to the exchange of defective component part(s) and labor performed by an Authorized Service Center.

Complete details of the Warranty are available on request.



2. SAFETY INFORMATION

Do not install and operate this equipment until the safety information and instructions in this user guide have been read and understood by all personnel concerned.

USER RESPONSIBILITY:

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE, AND VOID THE SAFETY CERTIFICATION.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalogue and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Only competent personnel trained, qualified, and approved by Parker Hannifin should perform installation, start-up, service and repair procedures.

This equipment is for indoor use only. Do not operate outdoors.

Nitrogen is nontoxic and largely inert. It can act as a simple asphyxiant by displacing oxygen in air. Inhalation of nitrogen in excessive concentrations can result in unconsciousness without any warning symptoms such as dizziness and fatigue.

The generator should be installed in an area with adequate ventilation to reduce the flammability of the oxygen-rich permeate stream. The system should not be installed in an area where the permeate stream poses the risk of explosion or combustion.

Use of the equipment in a manner not specified within this user guide may result in an unplanned release of pressure, which may cause serious personal injury or damage.

When handling, installing, or operating this equipment, personnel must employ safe engineering practices and observe all related regulations, health & safety procedures, and legal requirements for safety.

Never place liquids on top of the generator.

Do not store anything on top of the generator.

Never sit or climb on top of the generator.

Ensure casters are locked before starting up the generator.

Ensure that the equipment is depressurized and electrically isolated, prior to carrying out any of the scheduled maintenance instructions specified within this user guide.



Parker Hannifin cannot anticipate every possible circumstance which may represent a potential hazard. The warnings in this manual cover the most known potential hazards, but cannot be all-inclusive. If the user employs an operating procedure, item of equipment or a method of working which is not specifically recommended by Parker Hannifin the user must ensure that the equipment will not be damaged or become hazardous to persons or property.

Most accidents that occur during the operation and maintenance of machinery are the result of failure to observe basic safety rules and procedures. Accidents can be avoided by recognizing that any machinery is potentially hazardous.










Note: Any interference with the calibration warning labels will invalidate the gas generator's warranty and may incur costs for the recalibration of the gas generator.

Should you require an extended warranty, tailored service contracts or training on this equipment, or any other equipment within the Parker Hannifin range, please contact your local Parker Hannifin office. Details of your nearest Parker Hannifin sales office can be found at www.parker.com/labgas.

Retain this user guide for future reference.

2.1 Marks and Symbols

The following markings and international symbols are used on the equipment and within this manual:

Marking	Description
	Electrical Ground
	Warning: Do not remove covers while generator is operational.
	Warning: Fans are inside, consult the manual.
	Warning: Do not perform maintenance while the generator is pressurized.
	Warning: Exposed electrical connections inside.
	Caution
	Caution: Electrical Hazard
	Warning: Exposed, rotating pulley
	When disposing products for end of life including electronic parts and assemblies, follow local waste disposal regulations

3 DESCRIPTION



3.1 Intended Use

The ALIGN High-Flow Multi-Gas Generator is intended to supply lab-grade nitrogen, dry air and zero air to LC-MS and other instrumentation systems within a laboratory setting.

To guarantee the optimum efficiency of the nitrogen and dry air membranes it is recommended that the ALIGN High-Flow Multi-Gas Generator be run at or below the recommended pressure and flow for each of the outlet gases, as laid out in the Technical Specifications, Section 3.2.

3.2 Technical Specifications

This specification is valid when the equipment is located, installed, operated, and maintained as specified within this manual.

System Specifications	
Regulatory Information	
CSA Certification Standard	CAN/CSA C22.2 No. 61010-1-12 3rd Edition
IEC Standard	IEC 61010-1: 2010
UL Standard	UL 61010-1
IEC 61010 Installation	Category II
IEC 61010 Pollution	Degree 2
Impact Code	IK08
EMC Compliance	EN61326-1/CISPR 11
Generator Physical Specifications	
Dimensions (L x W x H)	34.5" (87.6 cm) x 23.74" (60.3 cm) x 24.62" (62.5 cm)
Product Weight	333 lbs (151 kgs)
Shipping Weight	575 lbs (261 kgs)
Sound Level	<55 dB(A) at 1 meter
Heat Dissipation	5221 BTU/Hour
Drain Port	1/4" Tube
Outlet Gas Specifications	
Curtain Gas (N2) Purity ¹	Up to 99% N2 with respect to O2
Curtain Gas (N2) Organics	Elimination of up to 99.999% organics
Curtain Gas (N2) Max Flow	26 SLPM at 60 psig (4.13 barg/413 kPa)
Source Gas (Air) Purity ¹	<0.1 ppm total hydrocarbons, -40°F (-40°C) atm dew point
Source Gas (Air) Max Flow ¹	26 SLPM at 100 psig (6.89 barg, 689 kPa)
Exhaust Gas (Air) Purity ²	<0.1 ppm total hydrocarbons, -40°F (-40°C) atm dew point
Exhaust Gas (Air) Max Flow ²	25 SLPM at 70 psig (4.82 barg, 482 kPa)
Suspended Liquids	None
Particles > 0.01 Micron	None

System Specifications Continued

Outlet Gas Specifications Continued

Phthalates	None
Max Tank Operating Pressure	115±2 psig (7.9±0.1 barg, 793 kPa)
Gas Outlets	1/4" NPT

Environmental Requirements

Min/Max Ambient Temperature	60°F/ 85°F (16°C/29°C)
Max Ambient Relative Humidity ²	43% at 86°F
Max Recommended Operating Altitude ³	2000 m

Electrical Requirements

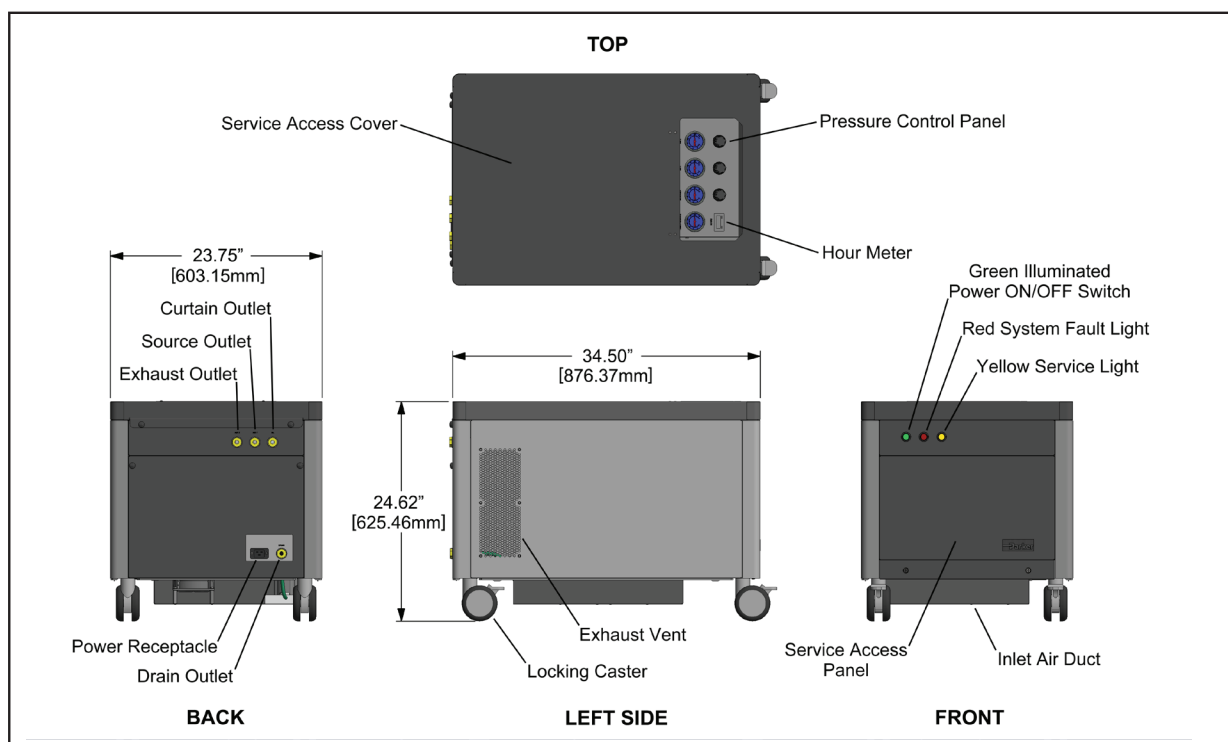
Electrical Supply for ALIGN-HFMG-NA, ALIGN-HFMG-JA, ALIGN-HFMGA-NA, ALIGN-HFMGA-JA	230VAC ± 15%, 50/60 Hz, 1 Phase, 20A, NEMA 6-20R receptacle
Electrical Supply for ALIGN-HFMG-WD, ALIGN-HFMGA-WD	230VAC ± 15%, 50/60 Hz, 1 Phase, 32A, IP44 receptacle
Power Consumption	15A@230VAC, 2500 Watts
Fuses (F1, F2)	JJS Class T, 600V, 25 A Fuse, 14.2 mm Dia x 38.1 mm

¹ For purity at specific flow rates and pressures please contact Parker Hannifin.

² For humidity and temperature information outside of this range please contact Parker Hannifin.

³ For altitudes outside of this range please contact Parker Hannifin.

3.3 Overview of Components



3.4 Regulatory Certifications

The generator is certified to the electrical safety requirements as specified by the IEC, UL, and CSA Standards by the certifying agency, the CSA Group. All three models carry the CSA and CE marking and are certified to the CB Scheme.

This product meets EMC compliance. The internal receiver tank is CRN registered and ASTM certified.

4 INSTALLATION

4.1. Receiving the Generator

All installation, operation, and maintenance activities for the ALIGN High-Flow Multi-Gas Generator should be performed by trained personnel practicing appropriate health and safety practices to avoid personal injury or damage.

The ALIGN High-Flow Multi-Gas Generator is packed in a Corrugated shipping container. Upon receipt of the product, carefully inspect the packaging for damage. If the packaging is damaged, inform the delivery company immediately and contact Parker Hannifin Customer Service at 800-343-4048.

Remove the corrugated cover, the components and accessories inside the packing (see Figure 1-3)

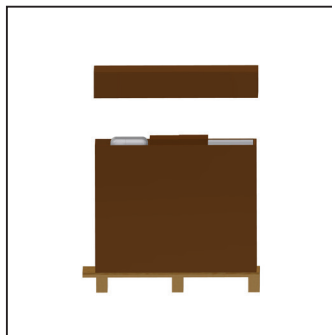


Figure 1

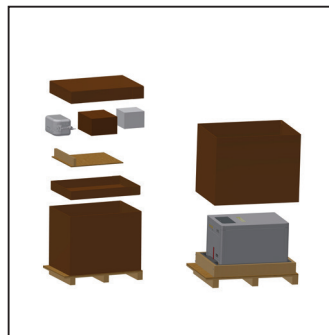


Figure 2



DO NOT ATTEMPT TO LIFT THE GENERATOR FROM THE CONTAINER.



DO NOT MOVE THE GENERATOR BEFORE SECURING THE RAMP.

Using a socket or wrench, remove the 4 bolts holding in the front face of the wooden pallet. Place the ramp at the front of the pallet. Secure the ramp with 2 cable ties (provided in the accessories). Insert the cable ties into the holes at the base of the pallet and the top of the ramp and fasten.

Perform with 2 people: Release the generator's locked casters and carefully guide the generator down the ramp. Move the generator and installation kit to its installation location.

(see Figures 4-7)

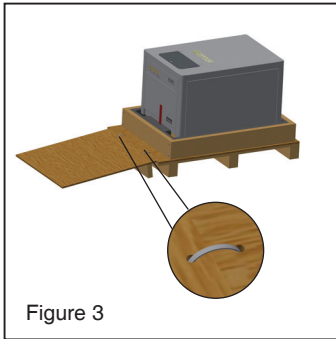


Figure 3

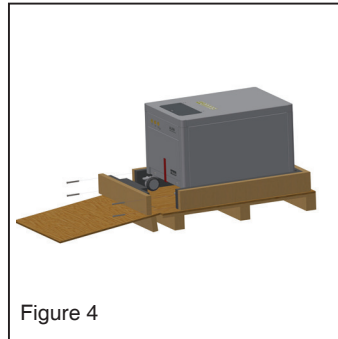


Figure 4

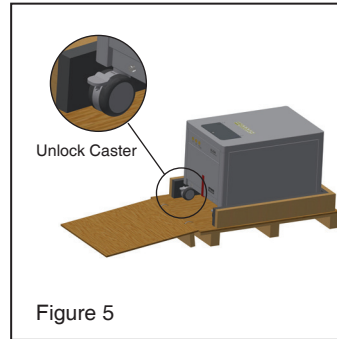


Figure 5

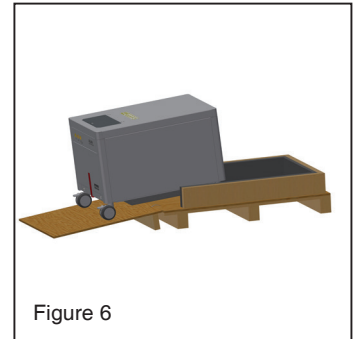


Figure 6

4.2. Inspect the Equipment



DO NOT ATTEMPT TO POWER UP THE GENERATOR UNTIL COMPLETING ALL STEPS BELOW.

Inspect the generator and check for signs of damage. Verify that the following items are included with the shipment:

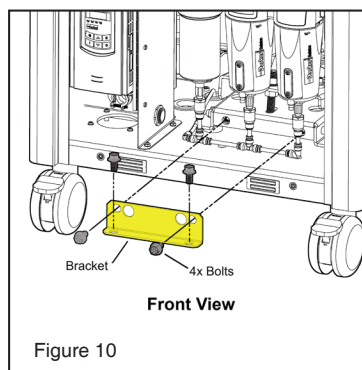
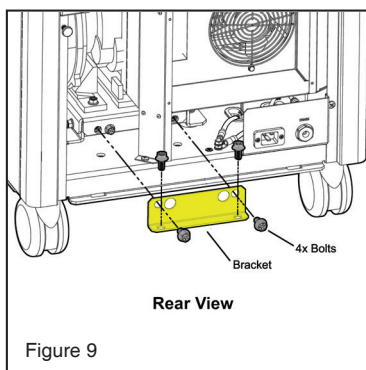
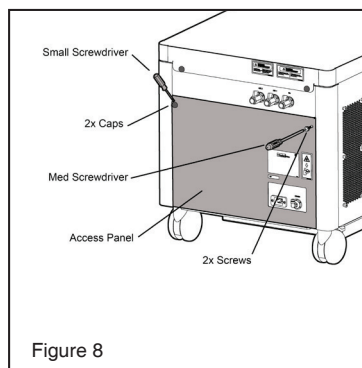
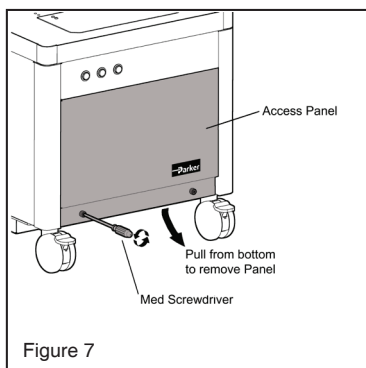
Qty	Description
1	Drain Silencer Assembly
1	Condensate Bottle
2	1/4" NPT to 1/4" Tubing Elbow
1	1/4" NPT to 5/16" Tubing Elbow
1	Power Cord
2	50 ft. 1/4" tubing
1	50 ft. 5/16" tubing
1	Tube Cutter
2	Spare Fuses
2	Cable Ties

If the generator is damaged or any items are missing, inform the delivery company immediately and contact Parker Hannifin.

4.3. Removing the Internal Shipping Brackets

The generator is shipped with internal brackets to prevent damage during transit. To access these brackets, remove the front and rear panels of the generator using a medium Philips screwdriver. The rear panel screws are covered by caps that can be removed using a small flathead screwdriver. Next, locate and remove the yellow brackets from the generator by removing the four securing bolts with a 9/16" socket wrench. (See Figures 7-10)

Please retain these brackets, as they must be re-installed if the generator is transported at any time in the future.



Replace front and rear panels before proceeding.

4.4. Choosing an Installation Location



This equipment is not suitable for use in any hazardous, flammable, or explosive environments. Keep the generator away from excessive heat and open flame.

The accumulation of nitrogen can displace oxygen thereby creating an asphyxiation hazard. Always ensure that the equipment is operated in a well-ventilated area.

Locate the generator as close to the instrument as possible following the requirements given below:

4.4.1. Environmental & Space Requirements

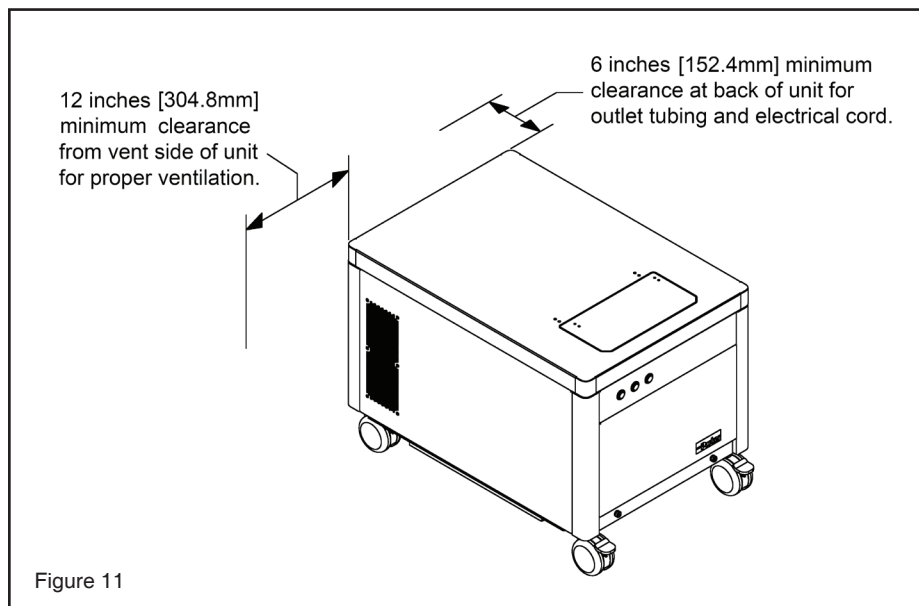
The generator is for indoor use only. Do not install outdoors. The generator must be installed in a climate-controlled room, meeting the environmental specifications set in Section 3.2.

It is critical that nothing is placed within 12 inches of the exhaust vent, located at the left rear side of the generator. An optional Vent Kit is available to route exhaust heat away from the generator, see Section 8 for purchasing information.

Do not install the generator where hot exhaust air from other equipment may be drawn into the intake at the rear of the generator. The area should be free of excessive dust, toxic or flammable gases, solvent fumes, and moisture.



Location of the generator with proper ventilation is critical. Install the generator in a clean, well ventilated area. To provide adequate ventilation and access for service, a minimum of 6 inches clearance is required behind the generator (see Figure 11). Fresh intake air enters from underneath the generator at the rear. Warm exhaust air exits from the left, rear side, which must always be kept clear. A minimum of 12 inches clearance is required on the left side of the generator (see Figure 11).



4.4.2. Tubing Requirements

Temperature or humidity variation along the length of tubing may affect gas purity. When possible, avoid placing the generator in a separate room and running tubing through walls and ceilings. When tubing is open to atmosphere, it's recommended to purge the lines before connecting to the instrument.

Additional generator-approved tubing is available from Parker Hannifin. Any tubing used must be phthalate-free. Use of non-approved tubing may reduce gas purity. See Section 8 for ordering details.

4.4.3. Electrical Supply Requirements

Parker supplies a step-up transformer for installations where the voltage may drop below 195VAC and a step-down transformer if the facility voltage may reach 265 VAC or higher. See Section 8 for ordering details.



Do not position the equipment so that it is difficult to operate or disconnect the plug from the electrical supply. The equipment is connected to protective earth (ground) through the power cord. It is essential that electrical supply is equipped with a protective earth (ground) terminal. Do not use alternative power cords.

The supply line should be dedicated to the generator. No other equipment should operate using the same line. It is the customer's responsibility to provide a fused electrical supply to the generator. It is recommended that this supply have surge protection. (See Section 3.2 for the electrical specification).

Only Parker Hannifin-approved power cords should be used. The power cord technical specifications can be found in Table 2 below. See Section 8 for ordering details should you need a replacement power cord.

Generator Part Number	Region	Electrical Specifications	Physical Specifications	Regulatory Specifications
ALIGN-HFMG-NA ALIGN-HFMGA-NA	North America	20A, 250VAC	12AWG/3, SJT, 8 Ft.	CSA, UL
ALIGN-HFMG-JA ALIGN-HFMGA-JA	Japan	20A, 250VAC	12AWG/3, SJT, 8Ft.	PSE, JET
ALIGN-HFMG-WD ALIGN-HFMGA-WD	Europe, India, UK	32A, 250VAC	10AWG/3, PCE, 8 Ft.	WDE, IMQ-HD-22, IP44, IEC309/1+2, CEE17, BS4343
	China	32A, 250VAC	10AWG/3, PCE, 8 Ft.	VDE, IMQ-HD-22, CE, OVE, CCC
	Australia	32A, 250VAC	10AWG/3, PCE, 8 Ft.	VDE, IMQ-HD-22

Table 2. Power Cords

Once equipment has been installed in the chosen location, lock all four casters.

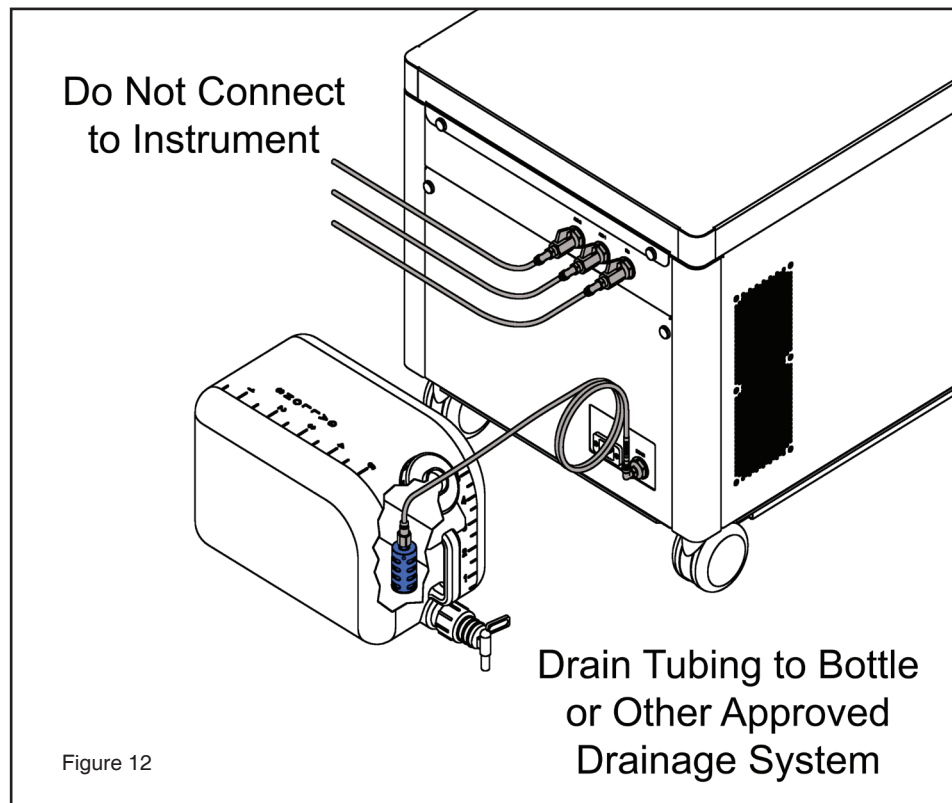
4.5 SET UP

4.5.1 Generator Set Up

1. Ensure that the installation location has been chosen in accordance with the requirements in Section 4.4.
2. Install the NPT-5/16" tubing elbow to the Curtain (Nitrogen) gas outlet using a 9/16" wrench. Install the 2 NPT-1/4" tubing elbows to the source and exhaust gas outlets using a 9/16" wrench.
3. Press the drain tubing assembly into the elbow marked "DRAIN" at the rear of the generator. Place the blue silencer in the supplied drain bottle or other approved drainage system.
4. For each of the three outlets, cut the 5/16" and 1/4" tubing to the appropriate length to connect the generator to the instrument. Press the tubing onto the corresponding elbows, but do not connect the tubing to the instrument.

Reference Figure 12 below for clarification on Steps 2-4.





4.5.2 Optional Exhaust Vent Installation

Parker Hannifin offers the option to vent the exhaust heat away from the generator using the Exhaust Vent Kit (part #B06-0394).

To install:

1. Screw the six cap screws into the threaded holes around the generator's vent using the supplied 5/32" hex key. Screws will stand out from the surface of the sheetmetal.
2. Install the exhaust vent by placing it over the screws and sliding down until it is fully seated.
3. Secure the ducting using the supplied clamps. Route to the desired exhaust location.

For duct lengths above 15 ft, use of the Exhaust Vent Booster Fan (part #B06-0398) with the Exhaust Vent Duct Extension (part #B04-0693) is required.

Reference Figures 13 & 14 for clarification on installation of the Exhaust Vent Kit and a depiction of how to assemble the Exhaust Vent Booster Fan and Duct Extension.

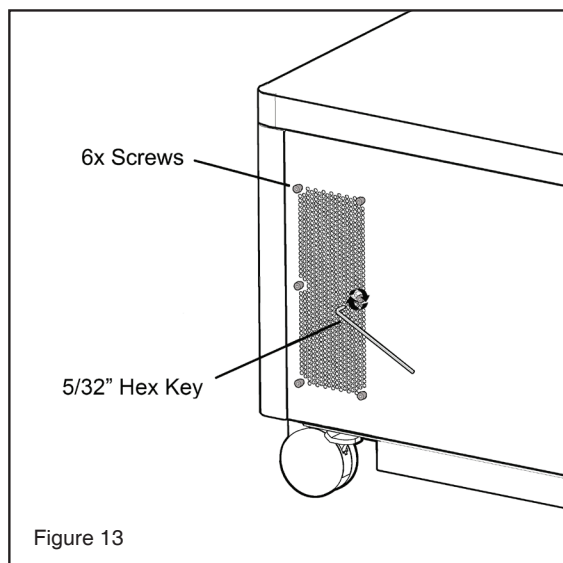


Figure 13

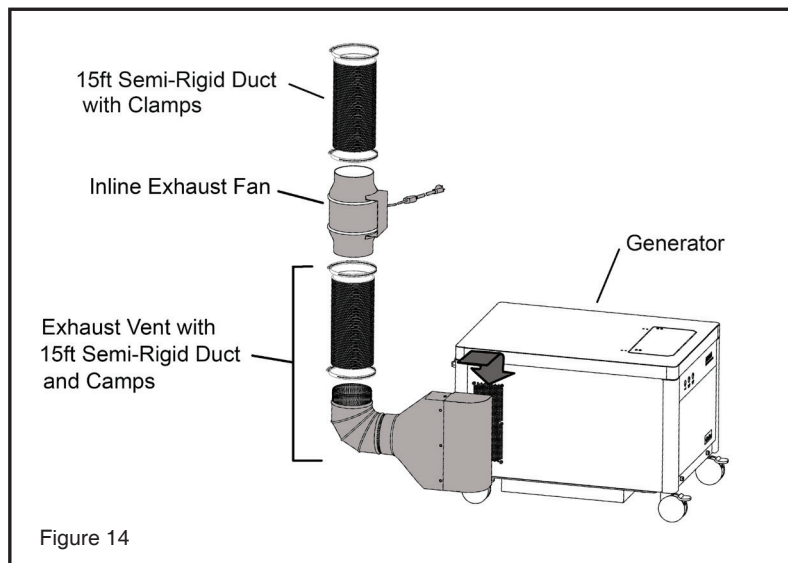


Figure 14

5. START-UP AND OPERATION

5.1. Start-Up



Before attempting start-up, ensure that the shipping brackets have been removed, as laid out in Section 4.3. Ensure that the outlet tubing is not connected to the instrument and the outlet valves are closed before attempting start-up.

Only competent personnel trained, qualified, and approved by Parker Hannifin should perform commissioning procedures.

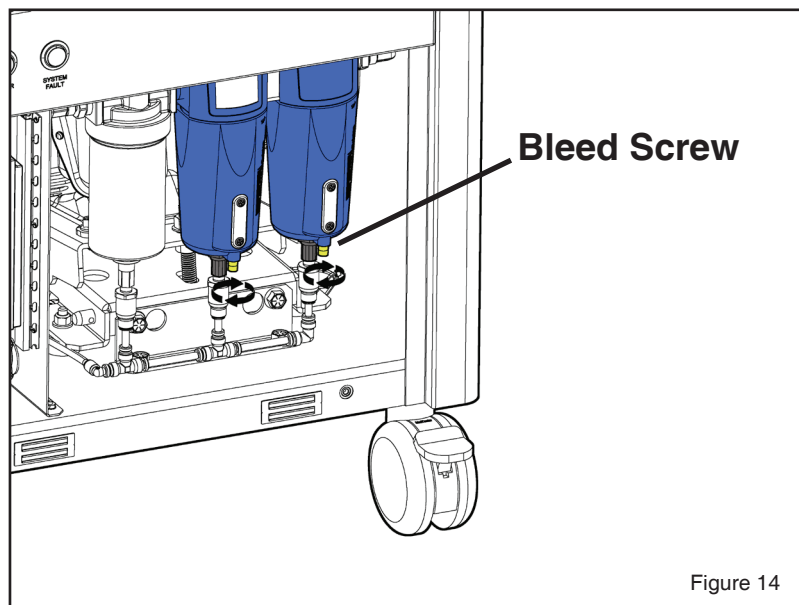
Perform this Start-Up procedure upon initial receipt of the generator and any time the generator is being restarted from cold. Purging the lines and allowing the generator to reach operating temperature are critical in ensuring gas purity.

1. Plug into the designated power supply then plug into the rear of the generator. See Section 3.2 for further details on the electrical requirements.
2. Press the green POWER button on the front panel of the generator. The generator will start, and the green LED will illuminate while the motor ramps up to its maximum speed.
3. Open the cover of the Pressure Control Panel on the top of the generator by pressing down to release the latch to read the TANK PRESSURE gauge. The generator should reach a steady state pressure of 115 psig in about a minute. Note: the speed of the motor at normal operation will vary depending on pressure and flow demands and will not always need to run at full speed.
4. Pull up on the pressure regulator knobs to unlock them. One at a time, adjust the pressure regulators to 20 psi.
5. Ensure that the outlet tubing is disconnected from the instrument to perform the initial purge and allow the generator to reach operating temperature. Slowly turn the yellow valve handles at the rear of the generator, approximately 10°-20° so that gas is venting to atmosphere. Allow the gases to purge for 45 minutes, then close the valves.
6. Connect the tubing to the instrument but do not open the valves on the generator.
7. Adjust the pressure regulators to the instrument specifications.
8. Slowly, fully open the valves to allow the flow of gas to the instrument.

9. As the instrument begins to draw gas from the generator the readings on the pressure gauges may change. Adjust the gas pressures as needed using the regulator knobs.
10. Once the pressure is set, press down on the regulator knobs to lock them in place. If the pressure needs to be adjusted in the future, pull up on the knobs to unlock them.

5.2. Shutting Down the Generator

1. Ensure that gas is no longer required by the instrument. Keep the yellow outlet valves open.
2. Switch the generator off by pressing the green POWER button.
3. Depressurize the system:
 - a. **PREFERRED METHOD:** Wait at least 20 minutes for the generator to depressurize.
 - b. **QUICK METHOD (~2 Min):** Unplug the power cord from the rear of the generator. Open the front panel by loosening the two retaining screws at the bottom. Next, slightly loosen the two brass bleed screws on the bottom of the two right-most blue filters. **DO NOT FULLY REMOVE THE BRASS BLEED SCREWS.** See Figure 14 below for clarification. When the tank pressure gauge reads zero, tighten the brass bleed screws.



4. Disconnect the power cord from the supply. Fully close all 3 outlet valves using the yellow valve handles. The generator is now fully shut down and ready for transportation or service.
5. To transport the generator:
 - a. Disconnect the tubing from the instrument's inlets and the generator's outlets. Disconnect the drain tube assembly and the power cord from the generator. Reinstall the shipping brackets as shown in Section 4.3.
 - b. Unlock the casters and move the generator using at least two people.
 - c. Repack the generator in the shipping crate by following the steps in Section 4.3 in reverse order. New crates and shipping brackets can be ordered from Parker. See Accessories in Section 8 for more information.

6. ALIGN IOT SETUP

This feature is only for ALIGN High Flow Multi-Gas Generator Advanced (ALIGN-HFMGA) and ALIGN Multi-Gas Generator Advanced (ALIGN-MGA), where unit is furnished with an IoT monitoring device. Enabling connectivity for real-time access to live data.

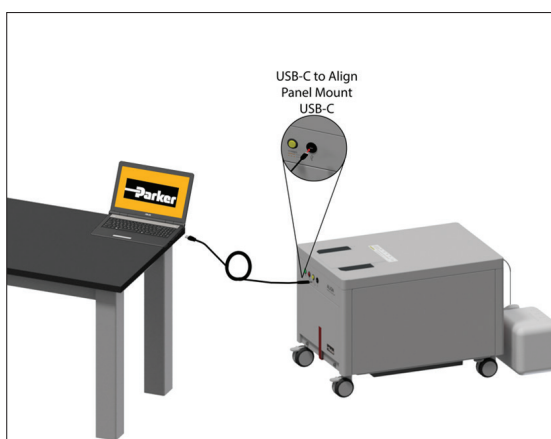
a. Parker Align Monitor software

To acquire the Parker Align Monitor software, please utilize the provided link for downloading:

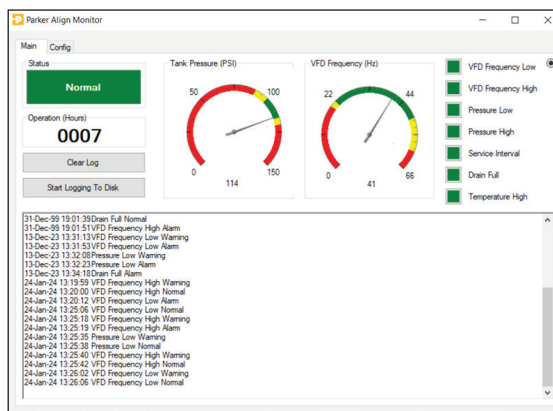
ph.parker.com/us/en/product-list/align-product-series-for-lc-ms-applications

b. Laptop connection and operation

Using supplied cable, connect USB-c port to Align front Panel and USB-A port to laptop.



Once laptop is connected, open Align Monitor software and live data screen will be displayed.



Using Start Logging To Disk button, software will start recording data in Excel format, file will be saved in the directory below:

C:\ParkerAlignLogs Log files are named PAllog_yyyy-MM-dd_HH-mm-ss.csv

c. Alarms and Diagnostics

When an alarm occurs, red light will turn on next to the addressed problem on the top right of the screen and will be recorded in the white window on the bottom of the screen.

Alarm	Troubleshooting
VFD Frequency High and Pressure low	<ul style="list-style-type: none"> • Check for system air leaks. • Verify tip seal maintenance has been done according to schedule. • Check for internal leaks and downstream tubing • Check motor is rotating in the correct direction • Contact Parker Technical Support for a technician to inspect
Temperature High	<ul style="list-style-type: none"> • Check to make vents are clear. • Clean vents if needed. • Verify unit is operating in the required ambient atmosphere. • Verify motor frequency is above 22Hz
Drain Full	<ul style="list-style-type: none"> • Check the test button on the drain. • Confirm outlet of drain is not obstructed. • Contact Parker Technical support for a technician to inspect.
Service Interval	<ul style="list-style-type: none"> • Contact Parker Technical Support
Pressure High	<ul style="list-style-type: none"> • Contact Parker Technical Support for a technician to inspect.
Frequency High	<ul style="list-style-type: none"> • Check belt tension. • Check for system air leaks.
Frequency Low and Pressure Low	<ul style="list-style-type: none"> • Check motor functionality • Check VFD functionality • Check tank pressure transducer wires and air leaks

7. PREVENTATIVE MAINTENANCE

The recommended service procedures identified below, along with all other repair and calibration work, should be undertaken by a Parker Hannifin-approved technician.

Figure 15 details the service intervals for the ALIGN High Flow Multi-Gas Generator. Failure to follow these intervals may void the warranty.

Kit Part Number	12 Months / 8,000 Hours	24 Months / 16,000 Hours	36 Months / 24,000 Hours	48 Months / 32,000 Hours
MKALIGN-HFMG-1 MKALIGN-HFMGA-1	X	X	X	
MKALIGN-HFMG-2 MKALIGN-HFMGA-2				X

Figure 15



DO NOT perform service or cleaning on the generator while it is plugged in.

7.1. Cleaning

Inspect the inlet air duct underneath the rear of the generator daily to ensure it is unobstructed and clear of dust and debris.

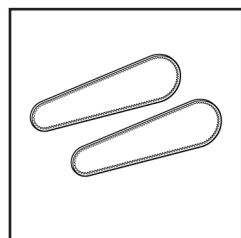
If required, clean the outside of the generator with a damp cloth. Avoid excessive moisture around any electrical sockets and labels. A mild detergent may be used, however, do not use abrasives or solvents.

7.2. Service Kits

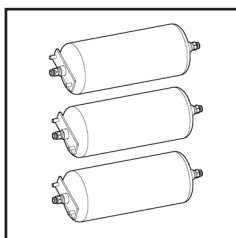
12 month Service Kit

Required Every 8000Hrs or 12 Months (Whichever Comes First).

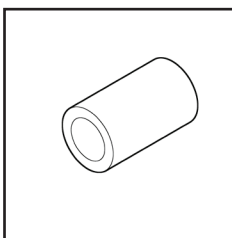
Part Number: MKALIGN-HFMG-1



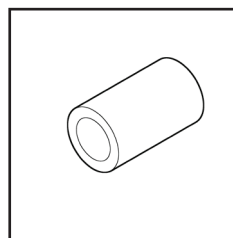
V-Belt



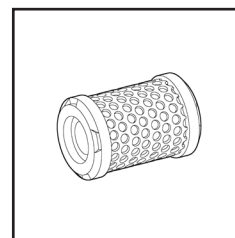
Adsorbent Tower



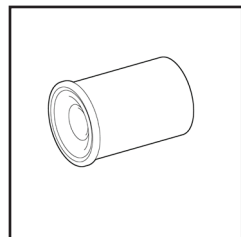
BX-Filter Element



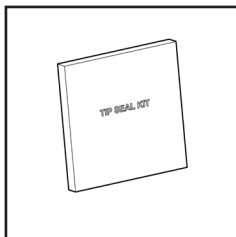
DX-Filter Element



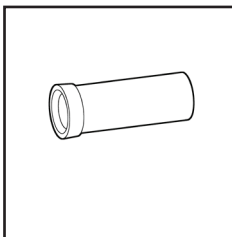
Water Separator



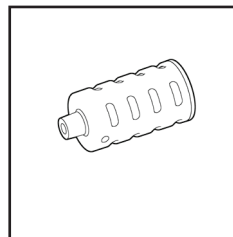
Intake Filter



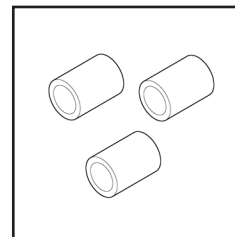
Tip Seals



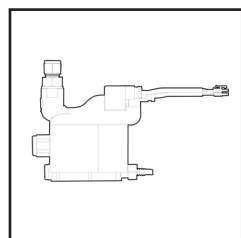
Pipe Sleeve



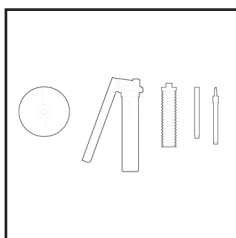
Drain Silencer



Particulate Filter



Eco Drain Assy

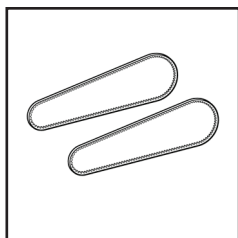


Grease Gun Kit

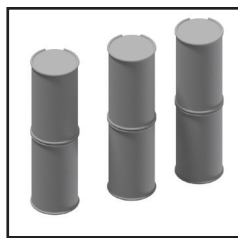
12 month Service Kit

Required Every 8000Hrs or 12 Months (Whichever Comes First).

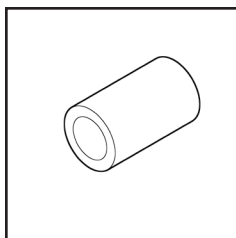
Part Number: MKALIGN-HFMGA-1



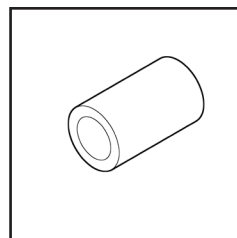
V-Belt



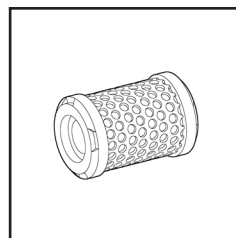
Adsorbent Bags



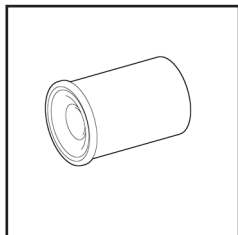
BX-Filter Element



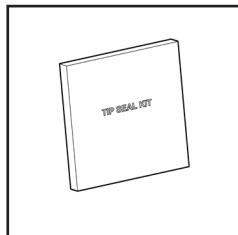
DX-Filter Element



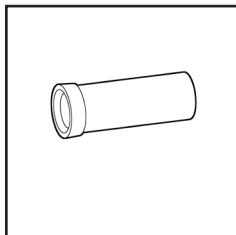
Water Separator



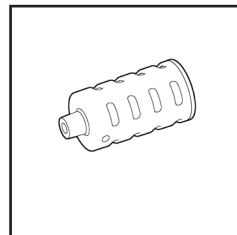
Intake Filter



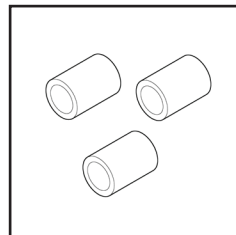
Tip Seals



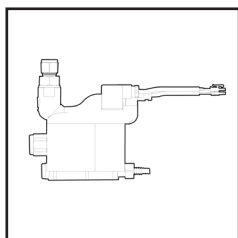
Pipe Sleeve



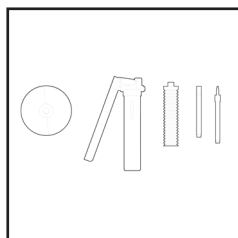
Drain Silencer



Particulate Filter



Eco Drain Assy

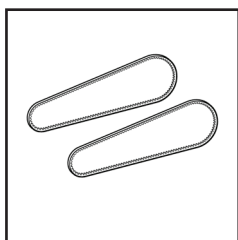


Grease Gun Kit

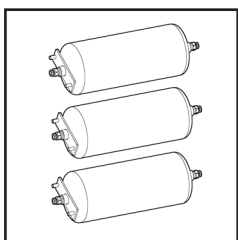
48 month Service Kit

Required Every 32,000Hrs or 48 Months (Whichever Comes First)

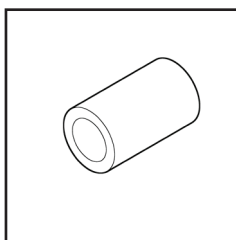
Part Number: MKALIGN-HFMG-2



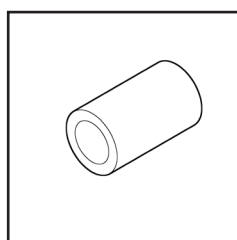
V-Belt



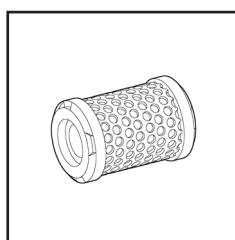
Adsorbent Tower



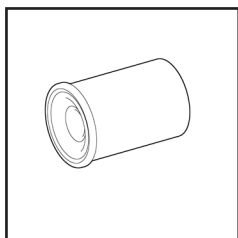
BX-Filter Element



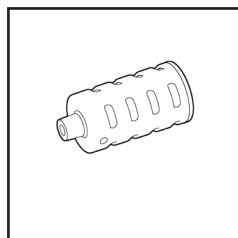
DX-Filter Element



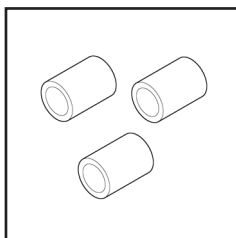
Water Separator



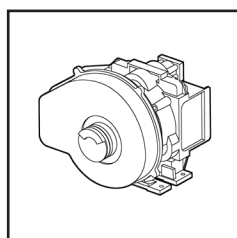
Intake Filter



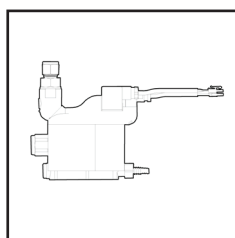
Drain Silencer



Particulate Filter



Compressor

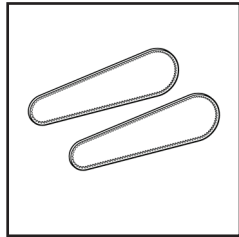


Eco Drain Assy

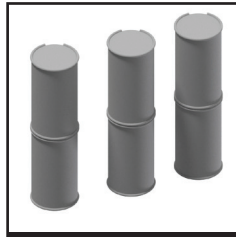
48 month Service Kit

Required Every 32,000Hrs or 48 Months (Whichever Comes First)

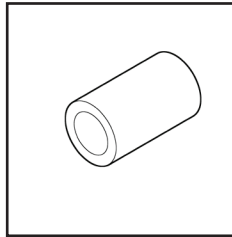
Part Number: MKALIGN-HFMGA-2



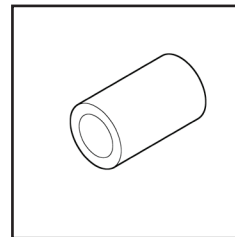
V-Belt



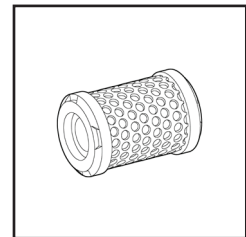
Adsorbent Bags



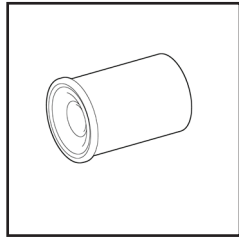
BX-Filter Element



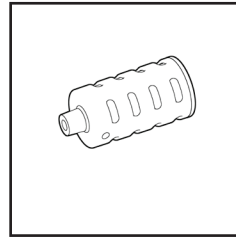
DX-Filter Element



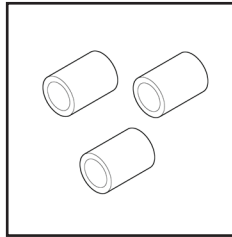
Water Separator



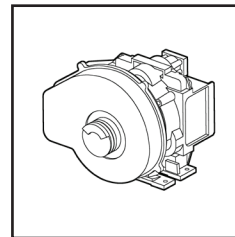
Intake Filter



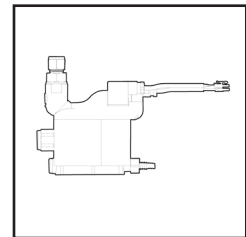
Drain Silencer



Particulate Filter



Compressor



Eco Drain Assy

7.3. Non-Preventative Maintenance Replacement Parts

Description	Part Number
Filter Autodrain	B06-0346
Dryer Membrane	B06-0391
Nitrogen Membrane	B06-0390
Motor	B06-0363
Pressure Regulator	A01-0549
Installation Kit	B06-0362
Gas Generation Sub-Assembly	B06-0412
Power Cord	See Table in Section 8
Motor Mount	B06-0286
25A Fuse	A03-0529

8. TROUBLESHOOTING & DIAGNOSTICS



There are potential safety risks to performing troubleshooting activities. The provided protective measures must be followed to ensure personnel safety. All troubleshooting activities should only be performed while the generator is powered off, depressurized, and unplugged from its power source while wearing safety glasses and gloves.

The personnel will verify the safe state of the generator after the maintenance or repair is completed.

8.1. Troubleshooting

Problem:

The generator has turned off and the red “SYSTEM FAULT” LED light is on.

To Troubleshoot:

1. Depressurize the generator as outlined in Section 5.2.
2. Remove the front panel by unscrewing the two retaining screws. See Figure 11 for details.



Do not reach inside of the generator while it is still powered.

3. Read the error message from the LED display on the VFD, located in the upper left-hand corner.
4. Record the error message and reinstall the front panel.
5. If the error message is listed in Section 7.2 below, follow the corresponding instructions.
6. If the error message is not listed, call Parker Hannifin Technical Support for help diagnosing the problem at 1-800-343-4048 or send an email to GSFsupport@parker.com.

Problem:

Instrument is not receiving an adequate gas supply, but the generator is still operational.

To Troubleshoot:

1. Check that the yellow valve handles are in-line with the silver outlets (in the “open” configuration).
2. Check that the pressure regulators are set to meet the instrument’s needs.
3. If problem persists: Depressurize the generator as outlined in Section 5.2. Do not unplug the generator at this time. Call Parker Technical Support at 1-800-343-4048 or send an email to GSFsupport@parker.com describing the problem.

8.2 Error Messages

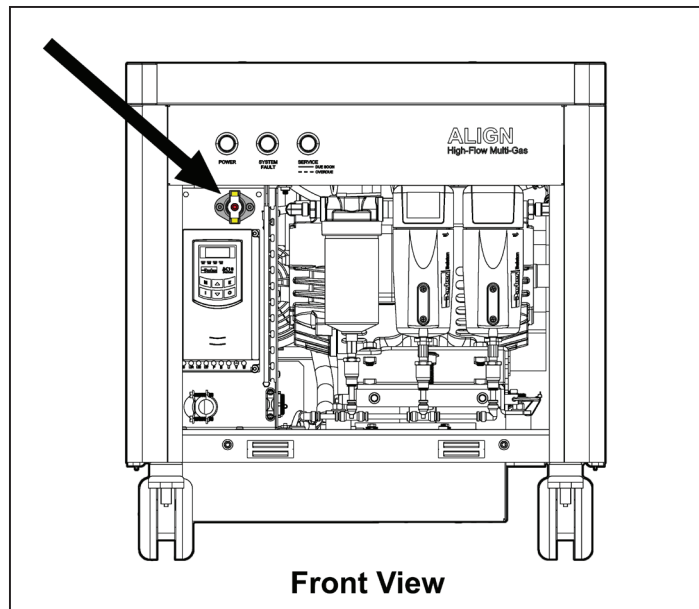
Fault	Description	Troubleshooting
GP	Ground Fault	<ul style="list-style-type: none"> Contact Parker Technical Support for a technician to inspect the motor.
LU	Under Voltage Protection	<ul style="list-style-type: none"> This error indicates low supply voltage. Check that the supply voltage meets the requirements in Section 3.2. Install a voltage booster. Available from Parker Hannifin. See Accessories in Section 8.
OC1	Overcurrent	<ul style="list-style-type: none"> Contact Parker Technical Support for a technician to inspect the motor.
OE	DC Over-Voltage	<ul style="list-style-type: none"> This error indicates high supply voltage. Check that the supply voltage meets the requirements in Section 3.2. Install a voltage reducer. Available from Parker Hannifin. See Accessories in Section 8.
PF1	Input Phase Loss	<ul style="list-style-type: none"> Check that the power supply meets the requirements in Table/Section 3.2.
PF0	Output Phase Loss	<ul style="list-style-type: none"> Contact Parker Technical Support for a technician to inspect the motor.
ESP	Input Signal Fault	<ul style="list-style-type: none"> Follow the procedure laid out in Section 7.3. If the SYSTEM FAULT light remains on, contact Parker Technical Support.

8.3. Resetting the Temperature Switches

Before checking the temperature switches, ensure the generator is unplugged and depressurized.

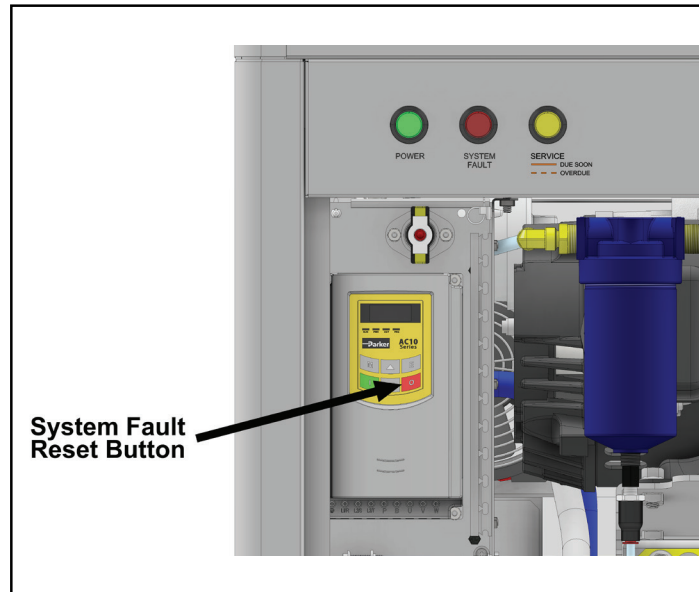
Front Temperature Switch:

1. Remove the front panel of the generator with the two self-retaining screws.
2. In the upper left-hand corner there is a red temperature switch. If this temperature switch has been triggered, the button will have popped out. Ensure that the button is depressed.
3. Replace the front cover.



Rear Temperature Switch:

1. The rear temperature switch is self resetting. Please allow at least 10 minutes for the temperature to reduce.
2. Remove the front panel of the generator with the two self-retaining screws.
3. Press the System Fault Reset button on the VFD control panel.
4. Replace the front cover.



To check if the fault has been cleared, plug the generator back in and attempt to turn it on. If the generator's SYSTEM FAULT light is still on, contact Parker Hannifin Technical Support.

9. ACCESSORIES

To purchase additional accessories, contact Parker Technical Support at 1-800-343-4048 or send an email to GSFsupport@parker.com

ALIGN-HFMG-NA Model Accessories

Description	Part Number
Voltage Booster	A03-0522
Exhaust Vent Kit	B06-0394
Exhaust Vent Booster Fan	B06-0398
Exhaust Vent Duct Extension	B04-0693
Power Cord	A03-0504
Twist Lock Adapter	A03-0526
Shipping Crate	B06-0429
Shipping Bracket	B06-0396

ALIGN-HFMG-WD Model Accessories

Description	Part Number
Voltage Booster	A03-0522
Exhaust Vent Kit	B06-0394
Exhaust Vent Booster Fan	B06-0398
Exhaust Vent Duct Extension	B04-0693
Power Cord	See Table below
Shipping Crate	B06-0429
Shipping Brackets	B06-0396

ALIGN-HFMG-JA Model Accessories

Description	Part Number
Voltage Booster (Required)	A03-0522
Exhaust Vent Kit	B06-0394
Exhaust Vent Booster Fan	B06-0398
Exhaust Vent Duct Extension	B04-0693
Power Cord	A03-0506
Shipping Crate	B06-0429
Shipping Brackets	B06-0396

Power Cords for ALIGN-HFMG-WD Model

Region	Part Number
EU, India, UK	A03-0357
Australia	A03-0358
China	A03-0360

Contact: Parker Hannifin

260 Neck Rd.

Haverhill MA, 01835

Contact the Technical Services Department at 1-800-343-4048, 8AM to 5PM Eastern

(North America Only)

For other locations, please contact your local representative or email at GSFsupport@parker.com

NOTES:

Worldwide Filtration Manufacturing Locations

North America

Compressed Air Treatment

Industrial Gas Filtration
and Generation Division
Lancaster, NY
716 686 6400
www.parker.com/igfg

Balston
Haverhill, MA
978 858 0505
www.parker.com/balston

Engine Filtration

Racor
Modesto, CA
209 521 7860
www.parker.com/racor

Holly Springs, MS
662 252 2656
www.parker.com/racor

Hydraulic Filtration

Hydraulic & Fuel Filtration
Metamora, OH
419 644 4311
www.parker.com/hydraulicfilter

Laval, QC Canada
450 629 9594
www.parkerfarr.com

Velcon
Colorado Springs, CO
719 531 5855
www.velcon.com

Process Filtration

domnick hunter Process Filtration
SciLog
Oxnard, CA
805 604 3400
www.parker.com/processfiltration

Water Purification

Village Marine, Sea Recovery,
Horizon Reverse Osmosis
Carson, CA
310 637 3400
www.parker.com/watermakers

Europe

Compressed Air Treatment

domnick hunter Filtration & Separation
Gateshead, England
+44 (0) 191 402 9000
www.parker.com/dhfn

Parker Gas Separations
Etten-Leur, Netherlands
+31 76 508 5300
www.parker.com/dhfn

Hiross Zander
Essen, Germany
+49 2054 9340
www.parker.com/hzfd

Padova, Italy
+39 049 9712 111
www.parker.com/hzfd

Engine Filtration & Water Purification

Racor
Dewsbury, England
+44 (0) 1924 487 000
www.parker.com/rfde

Racor Research & Development
Stuttgart, Germany
+49 (0)711 7071 290-10

Hydraulic Filtration

Hydraulic Filter
Arnhem, Holland
+31 26 3760376
www.parker.com/hfde

Ujala, Finland
+358 20 753 2500

Condition Monitoring
Parker Kittiwake
West Sussex, England
+44 (0) 1903 731 470
www.kittiwake.com

Process Filtration

domnick hunter Process Filtration
Parker Twin Filter BV
Birtley, England
+44 (0) 191 410 5121
www.parker.com/processfiltration

Asia Pacific

Australia
Castle Hill, Australia
+61 2 9634 7777
www.parker.com/australia

China
Shanghai, China
+86 21 5031 2525
www.parker.com/china

India
Chennai, India
+91 22 4391 0700
www.parker.com/india

Parker Fowler
Bangalore, India
+91 80 2783 6794
www.johnfowlerindia.com

Japan
Tokyo, Japan
+81 45 870 1522
www.parker.com/japan

Korea
Hwaseon-City
+82 31 359 0852
www.parker.com/korea

Singapore
Jurong Town, Singapore
+65 6887 6300
www.parker.com/singapore

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Bangkok, Thailand
+66 2186 7000
www.parker.com/thailand

Latin America
Parker Comercio Ltda.
Filtration Division
Sao Paulo, Brazil
+55 12 4009 3500
www.parker.com/br

Pan American Division
Miami, FL
305 470 8800
www.parker.com/panam

Africa
Aeroporto Kempton Park, South Africa
+27 11 9610700
www.parker.com/africa

