



NitroFlow TG1

Installation, Operation, and Maintenance Manual

Explanation of Warning Symbols

Symbol

Description



Caution, refer to accompanying documents for explanation.



Refer to the caution note indicated for explanation.



Caution, risk of electric shock.



Refer to the warning note indicated for explanation.

Parker NitroFlow TG1 Generator Series

Installation, Operation, and Maintenance Manual

These instructions must be thoroughly read and understood before installing and operating this product. Any modification of the product will void the warranty. Failure to operate this product in accordance with the instructions set forth in this manual and other safety governing bodies could jeopardize the safety of the operator and void the safety certification of this product. Retain these instructions for future reference.

If you have any questions, please call the Technical services department (North America) at 1-800-343-4048, 8AM to 5PM Eastern Time or e-mail at balstontechsupport@parker.com. For other locations, please contact your local representative.

Please refer to page 2 for an explanation of the caution/warning symbols used throughout this manual.

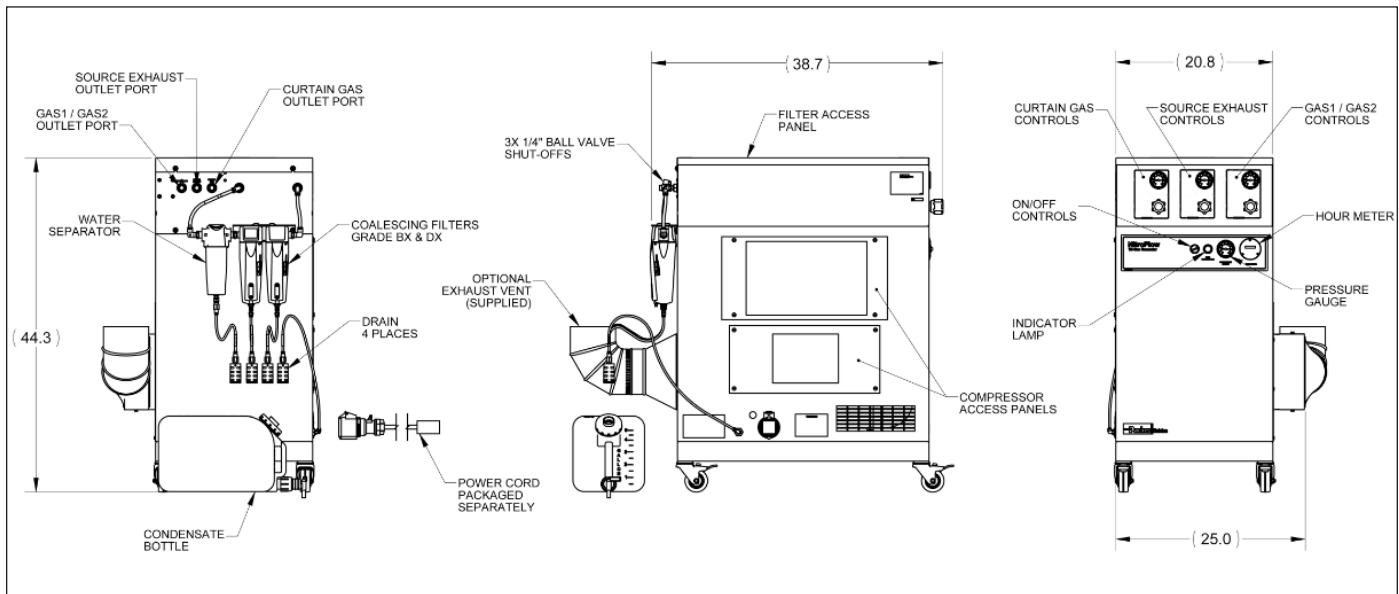


Figure 1: NitroFlow TG1 Nitrogen Generator (Shown with optional vent kit)

General Description

The integrated system is engineered to produce pure nitrogen gas, hydrocarbon free air, and clean dry air delivered by a carefully matched scroll compressor. The system is housed in two fully integrated cabinets: the lower cabinet produces the compressed air using an oil-less rotary scroll compressor. The upper cabinet separates the compressed air into the three gases: nitrogen, hydrocarbon free air, and clean dry air.

Integrated System

The Nitroflow TG1 generator contains the necessary components to produce nitrogen gas, hydrocarbon free air, and clean dry air. The system can be broken down into 6 stages: compressed air, liquid water removal, pre-filtration, oxygen/water vapor removal, hydrocarbon removal, and final filtration.

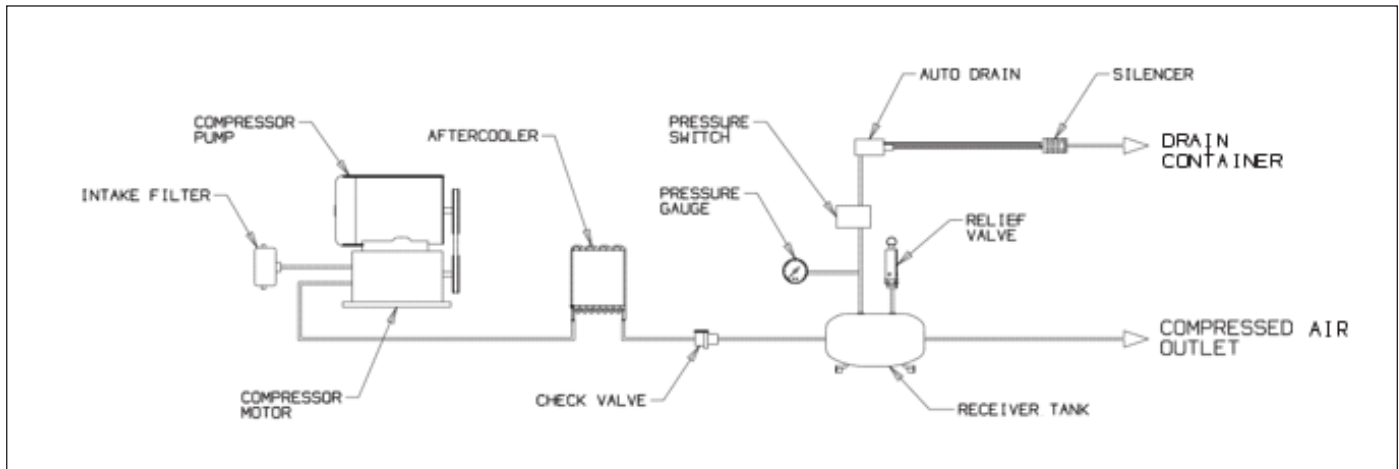


Figure 2A, Compressor Flow Schematic

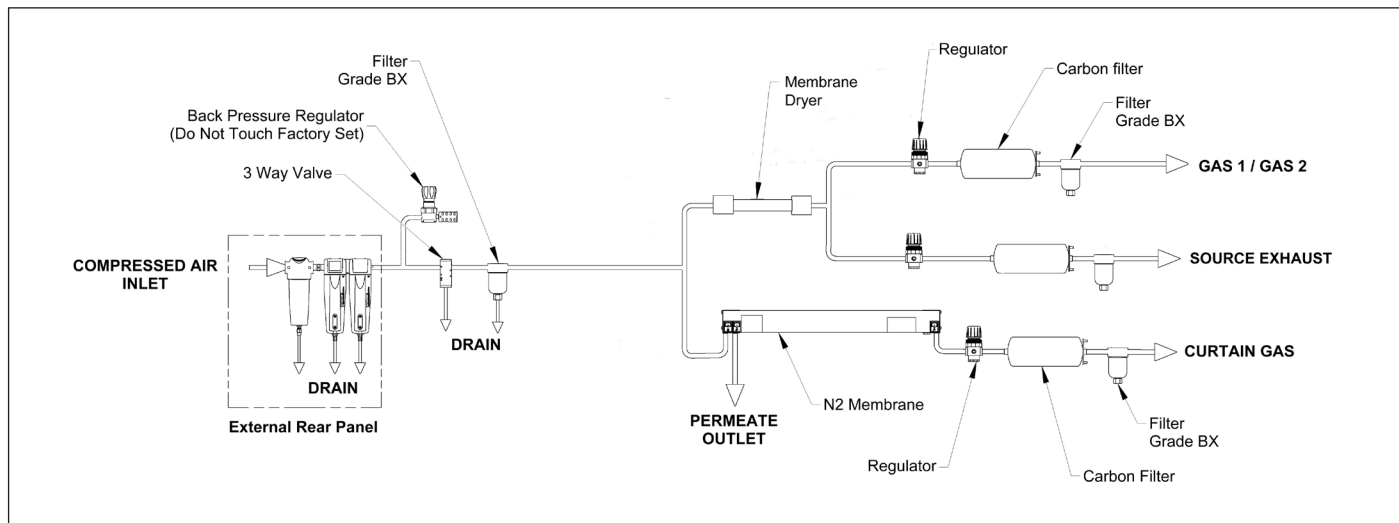


Figure 2B - Nitrogen Generator Flow for NitroFlow TG1

Scroll Compressor Pump

The design of the oil-less rotary scroll compressor offers high reliability and quiet operation. The scroll consists of two sets of identical spirals that are offset 180° from each other. As one scroll orbits around the other fixed scroll, air is trapped, compressed, and is then directed into the center where it is discharged from the pump.

Compressor After Cooler

A high output fan cools the compressor cabinet as it blows over a series of fins on the after-cooler. The compressor operates at a lower temperature, thus increasing bearing, tip seal, and grease life. As the fan blows across the after-cooler, the air temperature is decreased and water is condensed in both the after-cooler and in the reservoir. The water is discharged through the automatic electric drain valve that is connected to a disposal container.

Water Separator

The NitroFlow TG1 generator incorporates a water separator to remove liquid water from the compressed air before it reaches the prefilters. The liquids are collected in the supplied disposal container. Refer to the included installation and maintenance instructions, WS010-WS045.

Prefilters

Two stages of high efficiency coalescing pre-filters are incorporated into the design of the Nitroflow TG1 to remove water and particulate contamination to 0.1 micron. The generator is equipped with float drain valves to automatically discharge any liquids which have accumulated in the filter bowls. The liquids are collected in the supplied disposal container. These filters protect the membrane and associated components from contamination.

3-way Pneumatic Valve

A 3-way pneumatic valve is located after the prefilters to release any leftover liquid water that may be present on startup.

Hydrocarbon Removal

An activated carbon module is located upstream of the nitrogen module and the dryer module to remove any hydrocarbon contaminants that may exist in the room air. A particulate filter is located after this carbon module to remove any carbon particles.

Nitrogen Module

The NitroFlow TG1 generator has a hollow fiber membrane module which converts compressed air into high purity nitrogen. The membrane module has no moving parts assuring years of maintenance-free operation.

Dryer Membrane

The water vapor in the compressed air passes through the hollow fibers of the membrane for removal, resulting the dry air. A small portion of the dry air is redirected along the fibers to sweep out additional water vapor laden air and vented to atmosphere in the cabinet.

Outlet Carbon Module and Filter

An activated carbon module is located downstream of the membrane dryer to remove any volatile organic compounds that may be present in the air stream. A filter is located after this carbon module to remove any carbon particles.

Diagnostics

There are two diagnostic indicator lights on the Parker Balston NitroFlow TG1 System:

High Temperature LED (red): The "High Temperature" LED indicator illuminates when the compressor pump has reached its maximum temperature. The compressor will shut down by a thermal switch opening, preventing power to the motor. Compressor restarts automatically as soon as the over-temperature condition is corrected.

Power On LED (Green): This indicates the compressor is operating.

Installation

Unpacking

All installation, operation, and maintenance activities for the NitroFlow TG1 Generator System should be performed by trained personnel using reasonable care to avoid injury or damage. Unloading and loading of the generator requires two people.

The NitroFlow TG1 system has casters and is packed in a wooden shipping container. The installation kit, consisting of plastic tubing, tube fittings, and a plug is packed in a box inside the wooden container. Remove the wire L-shaped fasteners from the sides of the container (see Figure 3). Do not attempt to lift the generator from the container. Remove and locate the plywood ramp (see Figure 4). Secure the ramp with pins by fully inserting them into the predrilled holes. Release the locked casters. Move the generator down the ramp carefully. Avoid tipping the generator. Move the generator and installation kit to its installation location. Once the generator is located, lock the casters to prevent the unit from moving.

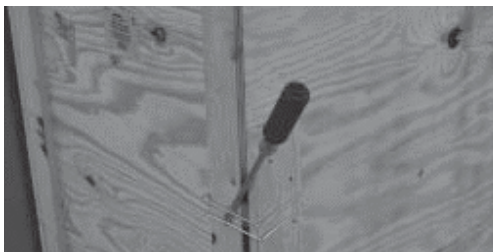


Figure 3



Figure 4

Location

Location of the generator with proper ventilation is critical. Install the generator in a clean, well ventilated area. To provide adequate ventilation and servicing for the generator, a minimum clearance distance of 30 inches in front and in the rear is required (see Figure 6). Fresh intake ventilation for the generator enters from the bottom and sides, while warm exhaust air exits from the right, rear side. A minimum of 3 inches clearance is required on both sides of the generator (see Figure 5).

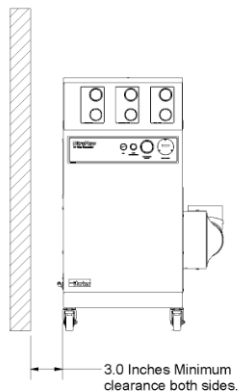


Figure 5

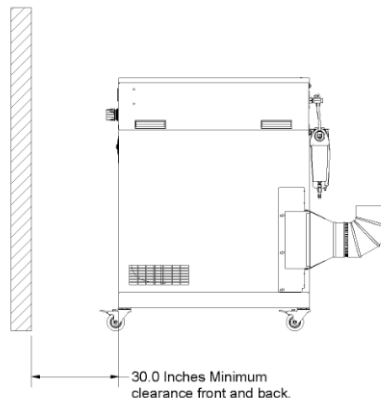


Figure 6



The generator is for indoor use only. Do not install outdoors. The generator must be installed in a climate controlled room. The ambient temperature of the air surrounding the generator should not exceed 85°F (29°C) or be below 60°F (16°C). **The relative humidity of the ambient should not exceed 43% at 85°F.** Do not locate the generator where hot exhaust air from other heat generating sources may be drawn into the generator. The area should be free of excessive dust, toxic or flammable gases, solvent fumes, and moisture. An exhaust vent attachment is available to route exhaust away from the generator (see Figure 6). The diameter of the exhaust vent ducting must be six inches. An in-line duct fan, capable of exhausting 226 CFM, is required for ducting greater than 15 feet. See Accessory Parts table on Page 17 for details.

The Parker NitroFlow TG1 Generator Series creates minimal noise during operation. The noise generated is about 49dB at one meter. Periodically there is an air discharge noise from the drain port eliminating accumulated fluids in the prefilters and receiver tank. The noise and heat generated by the unit should be considered when selecting an installation location. A silencer kit is included for the drain discharge noise reduction. There is also a pump “burp” noise lasting a few seconds each time the generator is shut down. This is the compressor depressurizing the pump during shutdown.

Utilities

For the NA Model: The NitroFlow TG1 Generator Series requires one electrical power outlet: a dedicated grounded 208 to 254VAC, 60Hz, single phase, minimum 30A circuit breaker with a NEMA 6-30R receptacle (see Figure 7). Parker requires purchasing a step-down transformer if your facility voltage is 255 or higher or a step-up transformer if your voltage decreases below 208VAC. See the accessory section on Page 17. Main supply voltage fluctuations must be within $\pm 10\%$ of the nominal main supply voltage.

For the JA and WD Models: The NitroFlow TG1 Generator Series, rated at 230V, 50 Hz, single phase, 13A fully loaded installation requires the following electrical setup:

- 1 The supply line should be dedicated to the generator. No other equipment should operate using the same line.
- 2 The service should be capable of carrying 20A. The wire gauge should be sized accordingly.
- 3 The service should be protected by up to a minimum 20A circuit breaker. The value is based on the application/equipment requirements as well as the electrical components' tolerance and uncontrollable external variables.



The following table describes the necessary mains cordset based on region. **Do Not Replace the provided cordset with an inadequately rated cordset. The plug on the cordset is the mains disconnect.**

The electrical schematic for the generator is shown in Figure 28 on page 23.

The following table describes the cordset required for each region:

* Note: JA-200 versions include an external step-up transformer.

System	Region	Description	Cordset Rating	Part Number
NitroflowTG1NA	North America	230V, 60Hz, non-locking US plug	30A, 250VAC	A03-0430
NitroflowTG1WD	EU, India, UK	230V, 50Hz cordset	32A, 250VAC	A03-0344
	Australia	230V, 50 Hz cordset	32A, 250VAC	A03-0345
	China	230V, 50 Hz cordset	32A, 250VAC	A03-0347
	JA	230V, 50 Hz cordset, with JA PSE plug	20A, 250VAC	A03-0408



NEMA 6-30R
30AMP/250V Receptacle
for Model : NA (North America)

Figure 7

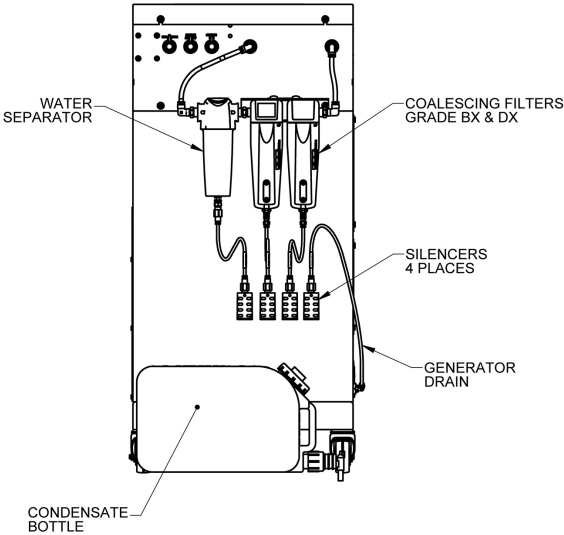


Figure 8

Piping

There are seven plastic tubing connections for the NitroFlow TG1 generator: (1) nitrogen outlet gas connection (Curtain Gas); (1) clean dry air outlet connection (Source Gas); (1) scrubbed compressed air outlet connection (Gas1/Gas2); (4) drain connections. Press the tubing into the quick-connect fittings. Assure tubing is fully inserted (about 1/2"). Tubing is provided in the installation kit. For remote locations, additional length tubing is provided.

Drains

The generator drain tube is a black nylon 1/4" tubing connecting the drain outlet to the provided disposal container (see Figure 8). A blue silencer is provided for the discharge end of the tubing to reduce the discharge noise. Periodically check the built in strainer to ensure it has not clogged.

The pre-filter and water separator drain tubes are also a black nylon 1/4" tubing connecting the drain outlets to the same provided disposal container (see Figure 8). Blue silencers are provided for each drain line.

Outlet Gases

The three outlet gas ports consist of three 1/4" NPT ports. Parker recommends minimum 1/4" PFA plastic tubing with a minimum pressure rating of 125 psig (8.6 bar). Check all piping connections for leaks using a bubble-type leak detecting solution.

Recommended Accessories

A03-0412 voltage step-down transformer - If your facility supply voltage is 255V or higher, then the use of this transformer is required.



A03-0411 voltage step-up transformer - If your facility supply voltage is 208V or lower, then the use of this transformer is required.

Operation

Start-up

Check that the power cord of the generator is properly connected to the generator receptacle. Rotate clockwise to lock. Check that the power cord of the generator is connected to the proper power supply outlet.



Figure 9

Generator Controls

Before turning the generator on, close all outlet ball valves (Figure 1). Rotate, clockwise, the Power Switch On (see Figure 9) on the front panel of the generator. The generator will start and the green LED will illuminate. The compressor output pressure gauge indicates compressor pressure. The compressor pressure slowly increases to a maximum set pressure of 137 psig (9.4 barg). Full pressurization will occur within 10 minutes. Allow the generator to warm up for 90 minutes from the start before opening outlet ball valves (Figure 1) and using it for gas generation.

Operation

During normal operation, the generator's power switch is illuminated green. The compressor pressure gauge indicates a pressure between 125 to 130 psig (8.6 to 8.9 barg). If the pressure drops below 125 psi, then the outlet flow is too high. Set the 3 regulators to the specified values by the instrument.

Do not remove the cover while the system is pressurized.

The generator has its own automatic water drain system. The 3 filters located on the back of the generator are equipped with pneumatic drains that open when the water level reaches a predetermined point. The compressor drain operates every 10 minutes, opens for 2 seconds; the two internal filter bowls also drain every 10 minutes.

Diagnostics

The generator cabinet has two LED indicators (see Figure 9): Power ON, and High Temperature. The green LED remains illuminated during normal operation. The "High Temperature" LED indicator remains unlit if the compressor is functioning properly. Red illumination of the High Temperature LED signals a fault condition and warns the operator that the unit requires servicing.

The compressor has an hour meter to record the accumulated operating time of the compressor for preventative maintenance scheduling of the serviceable components. The hour meter is not re-settable.

The compressor inlet pressure gauge indicates the range of system pressure during operation, normally between 125 psig and 130 psig.

See the Troubleshooting section of this manual on pages 19-21 to resolve any abnormal or faulty conditions.

Pressure Interruption

If the compressed air pressure decreases less than 90 psig (6.2 barg), the nitrogen output purity level will decrease. Once pressure is restored, purity level will be restored.

Power Interruption

If the electrical power is interrupted, the generator will start automatically when power returns.

Shutdown

For normal or emergency shutdown, pull out the plug on the cordset to disconnect the mains power (see Figure 1). Full depressurization takes 1 hour. **Do not remove cover while system is pressurized.**

Maintenance

Maintenance tasks for the NitroFlow TG1 Generator should be performed by trained personnel familiar with the service and safety precautions of electromechanical devices to avoid injury or damage. **Safety risks that may affect the service personnel are identified with the necessary protective measures described.**



Parker highly recommends service be performed by a Parker trained technician only. Call the factory about PMP, the Preventative Maintenance Program. The service personnel will verify the safe state of the generator after the maintenance or repair is completed.

Replacement Parts/ Maintenance Kits

	5,000 Hours	10,000 Hours	15,000 Hours	20,000 Hours	25,000 Hours	30,000 Hours	35,000 Hours	40,000 Hours
MKNITROFLOWTG2-1 (50 Hz Systems)								
MKNITROFLOWTG2-2 (60 Hz Systems)								
MKNITROFLOWTG2-3								
MKNITROFLOWTG2-4 (50 Hz Systems)								
MKNITROFLOWTG2-5 (60 Hz Systems)								
MKNITROFLOWTG2-6 (50 Hz Systems)								
MKNITROFLOWTG2-7 (60 Hz Systems)								
MKNITROFLOWTG2-8								

Compressor Component Maintenance

(refer to figures 11 through 17)

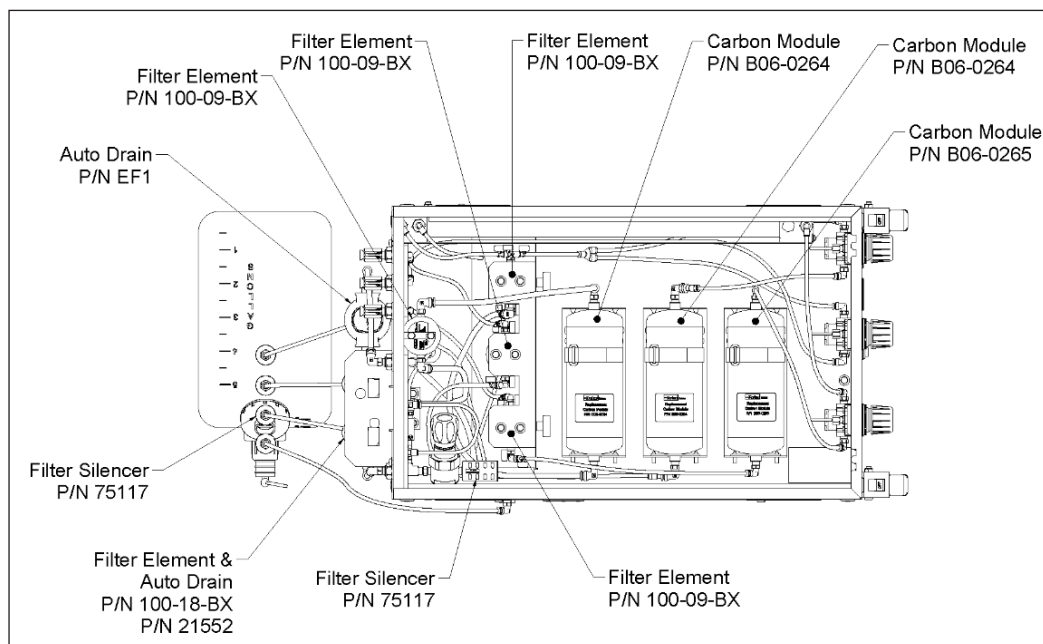
Service Interval	Replacement Part	Quantity
5,000 hours	Intake Filter	2
5,000 hours	V-Belts	2
5,000 hours	Tip Seal Set	1
5,000 hours	Grease	1
5,000 hours	Discharge Pipe Sleeve	1
As needed	Auto drain valve assembly	1
30,000 hours	Pump	1
30,000 hours	Check Valve	1
30,000 hours	Intake Filter	2
30,000 hours	V-Belts	2

Purification Component Maintenance

(refer to figures 20 through 26)

Service intervals are determined by an hour meter located on the front panel of the generator. The meter indicates 00000.0 hours. The hour meter does not reset.

Service Interval	Replacement Part	Quantity
10,000 hours	Carbon Module (P/N B06-0264)	2
10,000 hours	Carbon Module (P/N B06-0265)	1
10,000 hours	Filter Silencer (P/N 75117)	1
10,000 hours	Filter Element (P/N BY100-18-DX)	1
10,000 hours	Filter Element (P/N BY100-18-BX)	1
10,000 hours	Filter Element (P/N 4/100-09-BX)	1
30,000 hours	Carbon Module (P/N B06-0264)	2
30,000 hours	Carbon Module (P/N B06-0265)	1
30,000 hours	Filter Silencer (P/N 75117)	1
30,000 hours	Filter Element (P/N BY100-18-DX)	1
30,000 hours	Filter Element (P/N BY100-18-BX)	1
30,000 hours	Filter Element (P/N 4/100-09-BX)	1

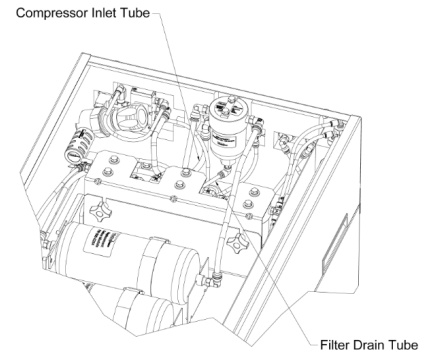
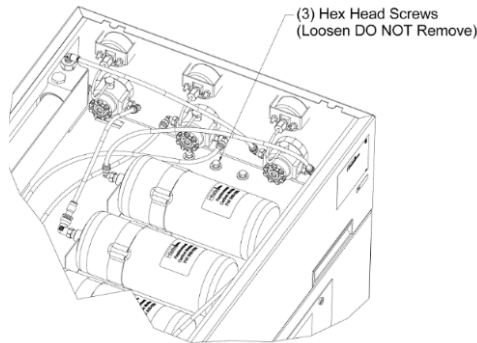
**Figure 10:** Top view with filter access panel removed.

Cleaning

If necessary, wipe the generator with a clean, dry cloth on an as-needed basis. Do not use water, aerosols or other cleaning agents on the unit. Use of any liquid detergent to clean the unit could pose an electrical hazard.

8,700 Hour Service Instructions**Intake Filter**

- 1 Remove the upper side compressor access panel (see Figure 1).
- 2 By hand, push-in and rotate one intake filter cap to remove. Undo latch to remove second intake filter cap (see Figure 11).
- 3 Replace the old filter elements with a new one, reverse steps to reassemble.

**Figure 11****Top View with cover removed****Figure 12****Figure 13****Figure 14****Belts**

- 1 Remove the top panel on the unit by removing two screws at the rear with a phillips head screwdriver and pulling top panel to the rear.
- 2 Remove two black nylon tubes from the drain ports of two filter housing by pushing the collet of the fitting towards the body of the fitting, and pulling on the tube to release it (see Figure 12).
- 3 Remove the compressed air inlet tube from the elbow (see Figure 12).
- 4 LOOSEN (do not remove) three hex head screws located at the front of the cabinet (Figure 13).
- 5 Disconnect the water separator tube & prefilter tube from the rear of the generator.
- 6 Remove two screws from the rear panel with a phillips head screwdriver.
- 7 Pull cabinet to the rear and lift off of compressor cabinet. Be cautious of exterior pre-filters.
- 8 Check belt tension (see figure 14) using a belt tension gauge or the deflection method. Tension gauge should indicate minimum 45 lbs. If using the deflection method, 3.0-3.38 lbs force at mid span should yield 7/32" belt deflection.
- 9 When making adjustments to the belts, make sure that pulley misalignment is no more than 1/16" and that both pulleys are not misaligned by more than 1/16" also (see Figure 15)
- 10 Adjust tension if required by adjusting motor bracket. Replace belts if needed.

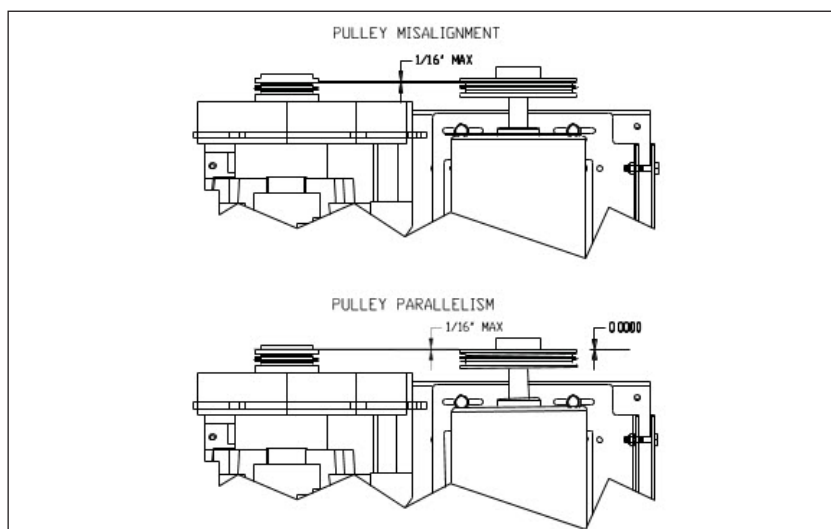


Figure 15, belt diagram

Grease Orbital Scroll Compressor Bearings

- 1 Remove the plastic dust cap from the pump (see Figure 16).
- 2 Rotate the compressor pulley until the grease fitting is visible in the dust cap hole.
- 3 Using a grease gun extension adapter to engage the grease fitting, supply the proper amount of grease according to the grease delivery Table 1, Figure 16.

Note: Pump grease gun before feeding to eliminate air from the needle adapter. Each pump equals 0.65 grams of grease. The volume of grease is less after the 2nd pump since some grease remains in the extension adapter.

- 4 Replace the plastic dust cap.

Table 1 - Grease Delivery

SLAE03E

Bearing**1st Pump****2nd Pump**

Orbit Scroll Bearing

5 times

4 times

Pin Crank Bearing

4 times

4 times

(Orbit Scroll side)

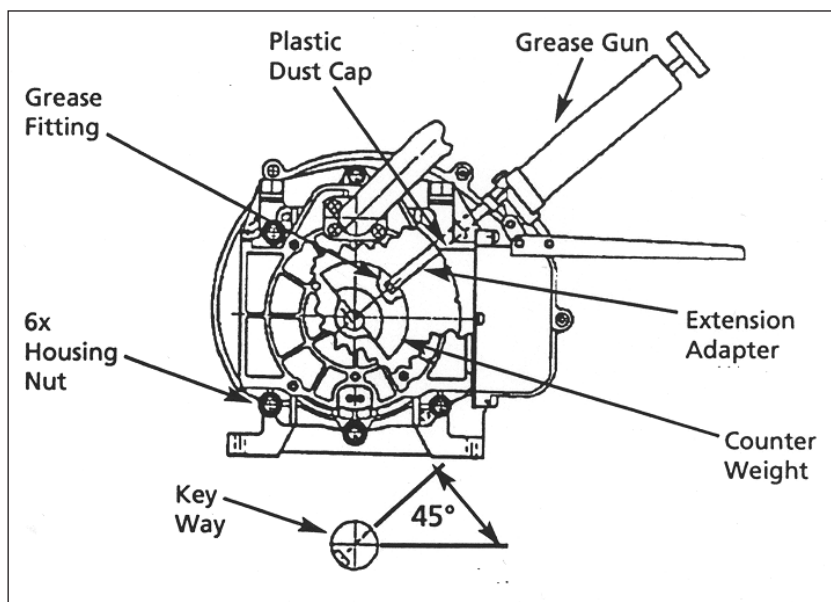
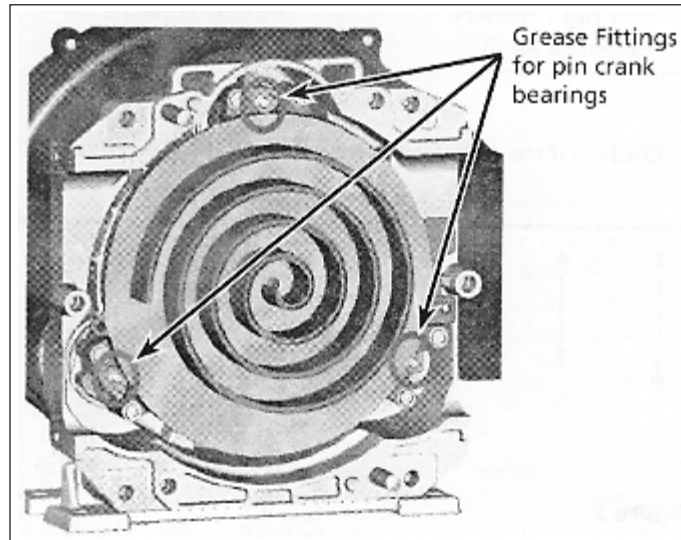


Figure 16 Grease and Orbit Scroll Bearing

Grease Pin Crank Bearing

- 1 Remove the side compressor access panel (see Figure 1).
- 2 Remove the fan duct.
- 3 Remove the nuts, bolts, and then the fixed scroll.
- 4 Grease three pin crank bearings according to Table 1 and Figure 17.
- 5 Replace fixed scroll and fan duct. Torque bolts, initially 17 inch-lbs., then finally 175 inch-lbs.

**Figure 17**

Note: The grease fitting located in the center of the pin crank bearing feeds only the orbit scroll side bearing. Use a needle adapter to supply grease to the housing side bearing. Pump grease gun to eliminate any air in the needle adapter. Hold grease gun for 5 to 10 seconds after feeding grease to prevent grease blowback from the grease fitting.

Replace Tip Seal

- 1 Remove the six housing nuts (see Figure 16).
- 2 Remove the stationary scroll housing.
- 3 Remove the old tip seals from both the orbiting and stationary scroll housings.
- 4 Remove the old dust seals from both housings.
- 5 Blow off any dust from both housings.
- 6 Install the new high pressure (shorter one) tip seal starting from the center of the scroll, outward inside the seal channel.

Note: The side and bottom lip notches of the tip seal face INWARD and DOWNWARD in the channel.

- 7 Install the new low pressure (longer one) tip seal in the same way.

Note: Make sure there is no gap between the high and low pressure seals.

Caution! Do not attempt to remove the orbit scroll from the housing.

- 8 After installing half of the low pressure seal, carefully remove the seal from the channel to make sure the seal is properly locking onto the channel indentations located just past the high pressure seal.

Note: The indentations are machined into the seal channel to prevent the low pressure seal from moving.

- 9 Blow off any dust caused by removing the seal from the channel.

10 Install the low pressure seal completely.

Note: Make sure the side and bottom lip notches are facing INWARD and DOWNWARD into the seal channel.

Note: The lip notches must not be distorted in the seal or torn off.

- 11 Install backup tube in the dust seal channel.





12 Place dust seal over the backup tube.

Caution! The backup tube must meet at the bottom of the housing in the six o'clock position. The dust seal must meet on the right side of the housing at the three o'clock position.

13 Install the stationary scroll housing onto the orbiting scroll housing and reassemble the unit.

14 Tighten the pulley bolt (M8) to 265 in.-lbs, using a torque wrench.

15 Tighten the six housing nuts to 265 in.-lbs, using torque wrench.

Fuse Replacement



There are three fuses located in the compressor cabinet (see Figure 19). **Before servicing the fuses, turn the generator off and disconnect the power cord from the power supply.**

To access the fuses, remove the upper compressor access panel (see Figure 1), and locate the fuse blocks. Both lines 1 and 2 are fused separately. Remove both line fuses. Replace either one or both fuses as required. **To maintain safety, use only fuses of the size and type specified in the Specifications section of this manual.**

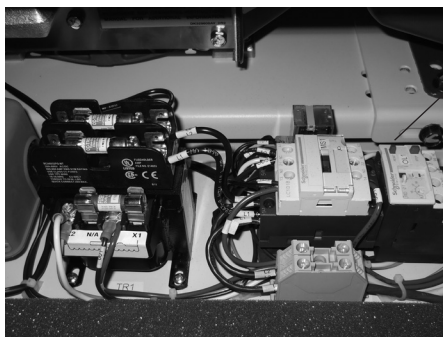


Figure 19



Figure 20 Water Separator DX BX

8,700 Hour Service Instructions

These instructions describe the replacing of the two coalescing pre-filters, two carbon modules, and two particulate filters in the NitroFlow TG1 Generator System Series.



Generator must be set to "OFF" and pressure gage must read zero before filter replacement.

Coalescing Filters

- 1 The replacement elements are B2104N-1B1-DX (first stage) and B2104N-0B1-BX (second stage). It is very important to install the proper grade filter into the proper housing. Take extra care to install in the proper sequence (see Figure 20). From the rear, DX on left, BX on right.
- 2 Twist the bowl loose from the head of the assembly, counter clockwise, and remove carefully so as not to damage or lose the o-ring (see Figure 21).
- 3 Unscrew the element retainer at the base of the element, and replace the spent element with a new one (see Figure 22).
- 4 Reverse the steps to reassemble. Make sure the o-ring is sealed in the groove before reinstalling the bowl.



Figure 21



Figure 22



Generator must be set to “OFF” and pressure gage must read zero before module replacement.

Carbon Modules

There are three carbon modules that require changing. Please note that the carbon modules will only mount to the brackets in one orientation.



Figure 23

- 1 Remove the top panel from the NitroFlow TG1 Generator Series by removing two screws with a phillips head screwdriver and pulling top panel to the rear (Do not pull it up before sliding it).
- 2 Disconnect the plastic tubing from the press fittings on the inlet and outlet ports of the module.
- 3 Release the hook and loop strap that clamps the module to the unit (see Figure 23). Slide the module out of the bracket.
- 4 Replace with a new carbon module, noting the correct orientation.
- 5 Slide the new module into the bracket fully and re-attach the hook and loop strap.
- 6 Re-insert inlet and outlet tubing. Use a soap or a leak detecting solution to check for leaks when pressurizing (re-starting) the unit.



Particulate Filters

Generator must be set to “OFF” and pressure gage must read zero before filter replacement.

- 1 Using a 1” wrench, remove the tie nut at the base of the bowl (see Figure 24).
- 2 Twist the bowl loose from the head of the assembly and remove carefully as not to damage or lose the o-ring (see Figure 25).
- 3 Pull off the element retainer at the base of the filter, and replace the spent filter element with a new one (see Figure 26).
- 4 Reverse the steps to re-assemble. Make sure the o-ring is sealed in the groove before reinstalling the bowl. Hand tighten, plus 1/4 turn using the 1” wrench.
- 5 Reconnect the tubing by following the numbers on the flags.



Figure 24



Figure 25



Figure 26

System Specifications

System Specifications	NitroFlow TG1
CSA Certification Standard	CAN/CSA C22.2 No. 61010-1-12
IEC Standard	IEC 61010-1
UL Standard	UL 61010-1
IEC 61010 Installation	Category II
IEC 61010 Pollution	Degree 2
Impact Code	IK08
EMC Compliance	EN61326-1/CISPR 11
Curtain Gas (N2) Purity	<5% Oxygen
Curtain Gas Max. Flow/Pressure	19 SLPM/70 PSIG (4.8 barg)
Gas 1 / Gas 2 Purity ²	<0.1 PPM Total Hydrocarbons
Gas 1 / Gas 2 Max. Flow/Pressure	26 SLPM/100 PSIG (6.9 barg)
Source Gas Purity	-40°F (-40°C) ATM Dew Point
Source Gas Max. Flow/Pressure	25 SLPM/65 PSIG (4.5 barg)
Suspended Liquids	None
Particles > 0.01 Micron	None
Phthalates	None
Sound Level	<49 dB(A) at 1.5 meter
Max. Compressor Operating Pressure	137 PSIG (9.4 barg)
Min./Max. Ambient Temp.	60°F/85°F (16°C/29°C)
Max. Ambient Relative Humidity	43% at 86°F – see chart on page 17
Altitude	2000M (for higher altitude, see chart on page 17)
Heat Dissipation	12560 BTU/Hour
Electrical Requirements ¹ - 60 Hz	208-254VAC, 60 Hz, 1 Phase, 16A
Electrical Requirements ¹ - 50 Hz	230VAC, 50 Hz, 1 Phase, 13A
Power Consumption - 60 Hz	16A@230VAC, 3680 Watts
Power Consumption - 50 Hz	13A@230VAC, 2990 Watts
Start-Up Time	10 Minutes
Compressor Outlet - Tank Drain	1/4" Tube
Ports - Filter Drains (2)	1/4" Tube
Ports - Water Separator	1/4" Tube
Ports - Nitrogen Outlet	1/4" NPT
Ports - Dry Air Outlet	1/4" NPT
Ports - Hydrocarbon Free Air	1/4" NPT
Fuses - Primary FU1, FU2	10.3 x 38.1mm, Type T, 600V, 1.25A
Fuses - Secondary FU3	6.3 x 31.7mm, Type T, 250V, 1.25A
Dimensions	33.5"L x 20.75"W x 45.25"H
Product Weight	427 lbs (194 kgs)
Shipping Weight	637 lbs (289 kgs)

¹ Main supply voltage fluctuations not to exceed $\pm 10\%$ of nominal voltage.

² Hydrocarbons other than methane.

Cautions



- 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 located in an area where the permeate stream poses the risk of explosion or combustion
- The drain lines should be piped away to the provided collection container (open to atmospheric pressure) to avoid any possible re-entrainment of liquid in the air which feeds the generator.
- The maximum operating pressure of the system is 137 psig (9.4 barg). Operating the generator at pressures above 137 psig (9.4 barg) will result in damage to the pump and membrane.
- 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.**
- Changes in inlet pressure or outlet flow demand will alter the gas purity.
- Install the generator in a room where the ambient temperature and humidity are below 85°F at 43% RH.**
- If using the accessory voltage step-up or step-down transformer assembly be aware the metal surface temperatures are HOT (max. 50°C in an ambient room temperature of 23°C).

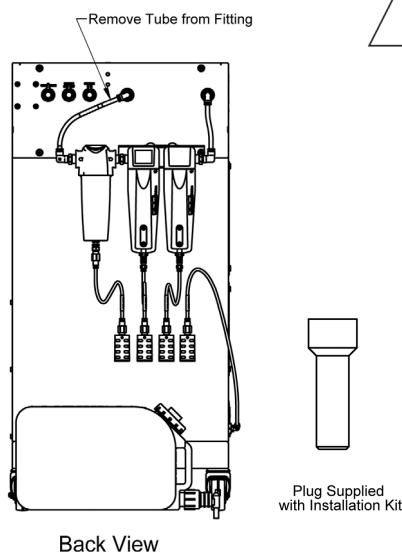
Accessory Parts	Part Number
Voltage Step-Down Transformer	A03-0412
Voltage Step-Up Transformer	A03-0411
Exhaust Ventilation Kit	B04-0575
Bottle Drain Kit (included)	B04-0540
In-line Duct Fan	A03-0378
Cordset, Non-Locking (NA)	A03-0430

Maximum Relative Humidity at Different Temperatures

Temperature (°F)	Relative Humidity (%)
86	43
80	51
75	60
70	71
65	84
60	100

Compressor Output Pressure at Different Altitudes

Altitude	Max Compressor Pressure at Full Flow	Max Outlet Pressure
0 – 3,280 ft (0 – 1000 m)	125 psig	115 psig
3,281 – 8,200 ft (1,001 – 2,500 m)	125 psig	115 psig
8,201 – 13,100 ft (2,501 – 4,000 m)	116 psig	106 psig
13,101 ft (4,001 m)	N/A	N/A

Troubleshooting**Figure 27**

Disconnect the electrical power and depressurize the generator before attempting any troubleshooting activities according to the shut down steps in the operation section. Only trained personnel using reasonable care should perform any troubleshooting activities.

Determine whether the trouble is with the compressor or the gas generator. Disconnect the plastic tubing from the compressor fitting (see Figure 27). Once removed, place supplied plug into fitting. Check that the compressed air source builds full pressure and cycles off within two minutes.

If the compressor air supply is confirmed, remove lower side panel and relieve tank pressure using auto tank drain test button. Proceed to the NitroFlow TG1 generator Troubleshooting section (page 21), and begin troubleshooting the NitroFlow TG1 generator. Otherwise, refer to the Compressor Troubleshooting section (pages 19, 20), and begin troubleshooting the compressor.

Compressor Troubleshooting

Symptom	Probable Cause	Corrective Action
POWER ON light (green) does not appear	• Power not plugged in • Power Switch is not ON • Blown fuse or tripped OFF circuit breaker at customer provided power supply • Blown fuse at primary side of transformer • LED power switch has failed	• Plug in power cord • Switch POWER to ON • Replace fuse or switch circuit breaker ON • Replace fuse on primary side. Be sure to use the same type and size • Replace switch
POWER ON light is on but motor will not start	• Motor overload has tripped • Wrong or low voltage • Starter failed • Motor failed	• Determine fault and reset overload (Blue button, Figure 19) • Check incoming power supply and unit power rating • Replace contractor assembly • Replace motor
Compressor is running but will not make pressure	• Auto drain valve is open continuously • Drive belts broke or are too loose • Clogged intake filter elements • Pressure relief valve has opened • Excessive tip seal wear • Motor running wrong direction	• Replace auto drain valve (see page 8 for settings) • Replace drive belts and (or) tighten to specification • Replace intake filter element per instructions • Pressure switch needs replacing or motor contacts welded shut • Replace tip seals per instructions every 8,700 hrs • Correct power connections
Excessive noise or vibration	• Drive belts are loose • Drive belt has separated or flat spot • Cooling fan touching guard • Motor bearing has failed • Re-greasing procedure not performed at 8,700 hr intervals • Pump damaged • Intake filters loose on pump	• Tighten belts to specification • Replace drive belt • Adjust guard • Replace motor • Removal of stationary scroll is required for pump inspection • Repair or replace pump • Tighten intake filters

Compressor Troubleshooting

Symptom	Probable Cause	Corrective Action
TEMPERATURE HIGH light is on, Compressor shuts down	- Room temp is above 90°F - Inlet air duct is obstructed - Cooling air fan not running - Re-greasing procedure not performed at 8,700 hr intervals - Aftercooler fins dirty, clogged - Excessive tip seal wear - Intake filter damaged	- Add ventilation or air conditioning to room - Remove obstruction or reposition unit to allow for cooling air - Check electrical connection at fan - Replace cooling air fan - Re-grease - Clean aftercooler - Replace tip seals per instructions every 8,700 hrs - Check, replace filter
Compressor shuts down on temperature malfunction	- Compressor is dirty - Temperature switch is unplugged - Temperature switch has failed	- Clean unit - Plug in temperature switch - Replace temperature switch
Safety valve blows off	- Pressure switch has failed to open - Motor starter contacts welded shut	- Replace pressure switch - Replace motor starter
Motor overload has tripped	- Motor has failed - Improper wiring - Wrong overload setting - Low voltage - Pump has failed	- Replace motor - Check wiring - Check overload setting - Check incoming power supply - Fix or replace pump
Water condensation in tubing	- High ambient humidity - Improper ventilation - Top cover removed - Drain is clogged - Drain failure	- Find different install location - Add ventilation kit - Reinstall top cover - Clean auto drain filter - Replace auto drain

NitroFlow TG2 Generator Troubleshooting

Symptom	Probable Cause	Corrective Action
No pressure	• Compressor is not ON	• Turn on compressor
	• Regulator is closed	• Open pressure regulator
	• System leaks at fitting connections	• Check for leaks at connections
No or Low Flow	• Internal leak	• Check for leaks
	• External leak	• Check for leaks
	• Compressor not at pressure	• See compressor section
	• Particulate filter plugged	• Replace filter
	• Membrane rupture	• Replace membrane
Low Output Pressure	• Flow demand greater than rated capacity	• Reduce flow demand
Low Nitrogen Purity	• Flow demand greater than 20 LPM	• Reduce flow demand
	• Nitrogen Module Malfunction	• Replace module
	• High relative humidity	• Move to area where RH is less than 43% at 86°F – see table
	• Water carryover due to water separator float drain malfunction	• Replace water separator float drain
	• Water carryover due to filter float drain malfunction	• Replace filter float drain
	• Spent carbon modules	• Replace carbon modules

Don't Forget To:

- 1 Complete and mail or fax in your warranty registration card.
- 2 Keep your product certification in a safe place.
- 3 Call the Technical Services Department at 800-343-4048, 8AM to 5PM Eastern Time (North America only) or email at balstontechsupport@parker.com with any questions. For other locations, please contact your local representative.

The serial number for the unit is attached to the back panel. 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: 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.

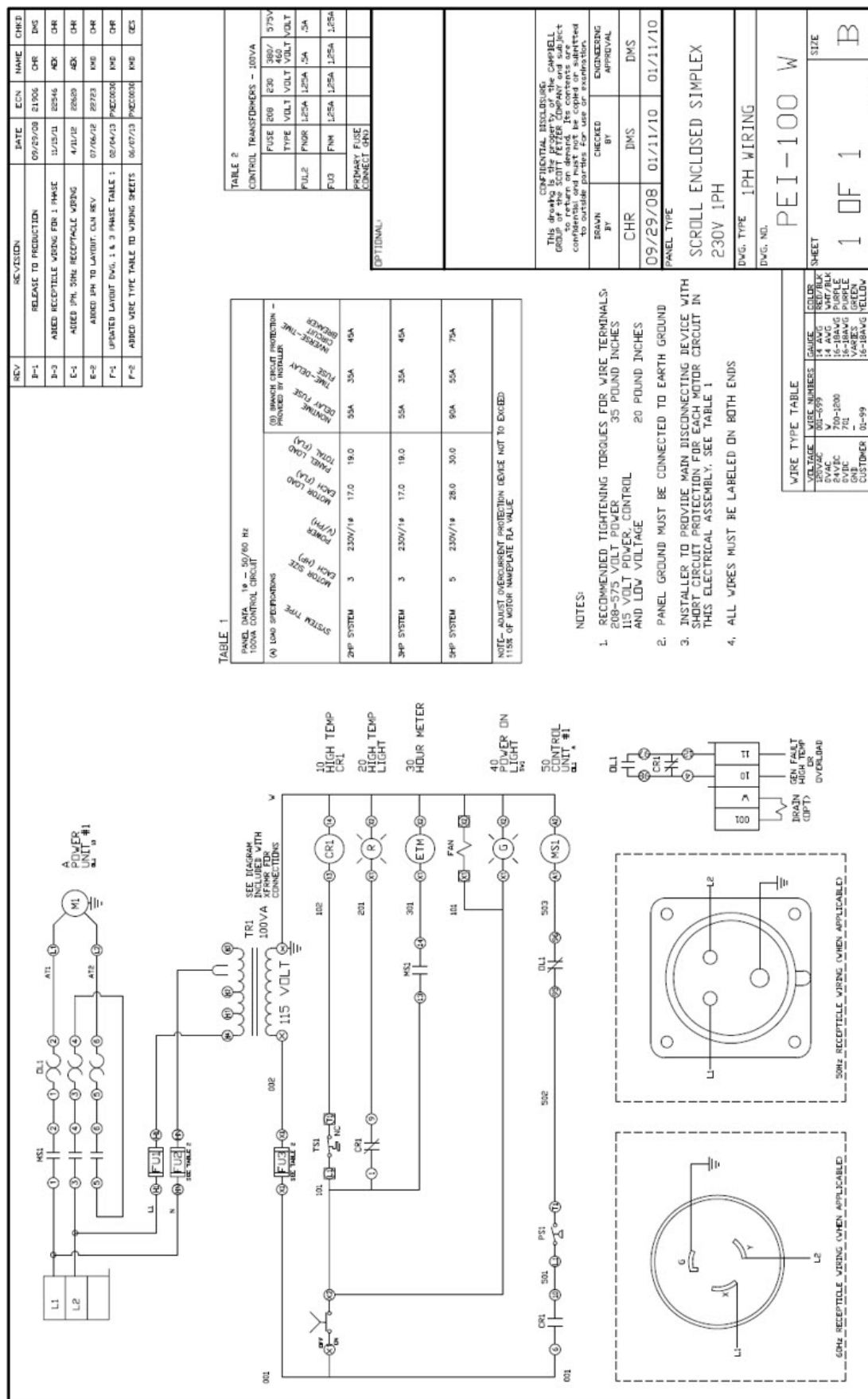


Figure 28

