VANAIR
A Lincoln Electric Company

EPEQ Electrified Power Equipment INVERTER3000

EPEQ® Electrified Power Equipment®
3000W, 12VDC, 120VAC Inverter
Manual No. 090241

USER GUIDE

OPERATION MANUAL AND SERVICE PARTS LIST
KEEP THE MANUAL WITH THE VEHICLE

NOTE: Read this manual before installing, operating or servicing this equipment. Failure to comply with the operation and maintenance instructions in this manual will VOID THE EQUIPMENT WARRANTY.

This publication contains the latest information available at the time of preparation. Every effort has been made to ensure accuracy. Vanair®, a Lincoln Electric Company reserves the right to make design change modifications or improvements without prior notification.

Making unauthorized modification to the system components WILL VOID THE WARRANTY! Always contact Vanair® before beginning any changes to the EPEQ® INVERTER3000.

Effective Date: 04/29/2026

EPEQ Electrified Power Equipment INVERTER3000

TABLE OF CONTENTS

1.1 INTRODUCTION

Thank you for purchasing the EPEQ® INVERTER3000. With our state of the art, easy to use design, this product will offer you reliable service for providing AC power and 5V USB power for your truck, RV or trailer. The inverter can run many AC-powered appliances. The 5V USB @ 2.1A can charge many USB-powered devices. This manual will explain how to use this unit safely and effectively. Please read and follow these instructions and precautions carefully.

1.2 SAFETY

This section contains important safety information for the INVERTER3000 inverter. Before using the EPEQ® INVERTER3000, make sure the operator has read and understands the user manual, warnings and operation. This unit contains no user-serviceable parts. See Warranty section for handling product issues.

1.2.1 FIRE/CHEMICAL BURN HAZARD

Do not cover or obstruct any air vent openings or install in a compartment with zero clearance.

1.2.2 FAILURE TO FOLLOW INSTRUCTIONS CAN LEAD TO DEATH OR SERIOUS INJURY

- When working with electrical equipment or batteries, have someone nearby in case of emergency.
- Follow all the battery manufacturer's specific precautions when installing, using and/or servicing the battery connected to the inverter.
- Wear eye protection and gloves. Avoid touching eyes while using this unit.
- Keep fresh water and soap on hand in the event battery acid comes into contact with eyes. If this occurs, flush eyes right away with clean, fresh water for a minimum of 15 minutes and seek medical attention. Thoroughly wash hands and any affected areas of skin with soap and water.
- Batteries can produce explosive gases. DO NOT smoke or have an open flame, spark or potential short circuit near the battery.
- Keep the unit away from water, moist or damp conditions.
- Avoid dropping any metal tool or object on the inverter or battery. Doing so could create a spark or short circuit which goes through the battery or another electrical tool and may create an explosion.

1.2.3 SHOCK HAZARD. KEEP AWAY FROM CHILDREN

- Avoid moisture. Never expose the unit to snow, water, etc.
- This unit provides high voltage AC, treat the AC output socket the same as a regular wall socket in your home.

1.2.4 EXPLOSION HAZARD

- DO NOT use the unit in the vicinity of flammable fumes or gases (such as fuel tanks or large engines).

- DO NOT obstruct the ventilation openings. Always operate in an open area.
- Prolonged exposure to high heat or freezing temperatures will decrease the working life of the unit.

1.2.5 FCC INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiver antenna.
2. Increase the separation between the equipment and the receiver.
3. Connect the equipment into an outlet on a different electrical circuit from that which the receiver is connected.
4. Consult the radio/TV dealer or an experienced radio/TV technician for help;

1.2.6 LIMITATIONS ON USE

Vanair® Inverters are not intended for use with medical devices and lifesaving systems. Any such use is at the user's own risk.

1.3 PRODUCT DESCRIPTION

The power inverter Package includes the following items:

- Owner's Manual
- EPEQ® INVERTER3000 Base Unit
- Remote Panel Cable

1.4 INSTALLATION

WARNING

It is recommended that all wiring be done by a certified electrician or technician to ensure adherence to all applicable electrical safety wiring regulations and installation codes. Failure to follow these instructions can damage the unit and could also result in personal injury or loss of life.

CAUTION

The unit should be used or stored in an indoor area away from direct sunlight, heat, moisture or conductive contaminants. When placing the unit, allow a minimum of three (3) inches clearance around the unit for optimal ventilation.

1.4.1 UNDERSTANDING THE UNIT FEATURES

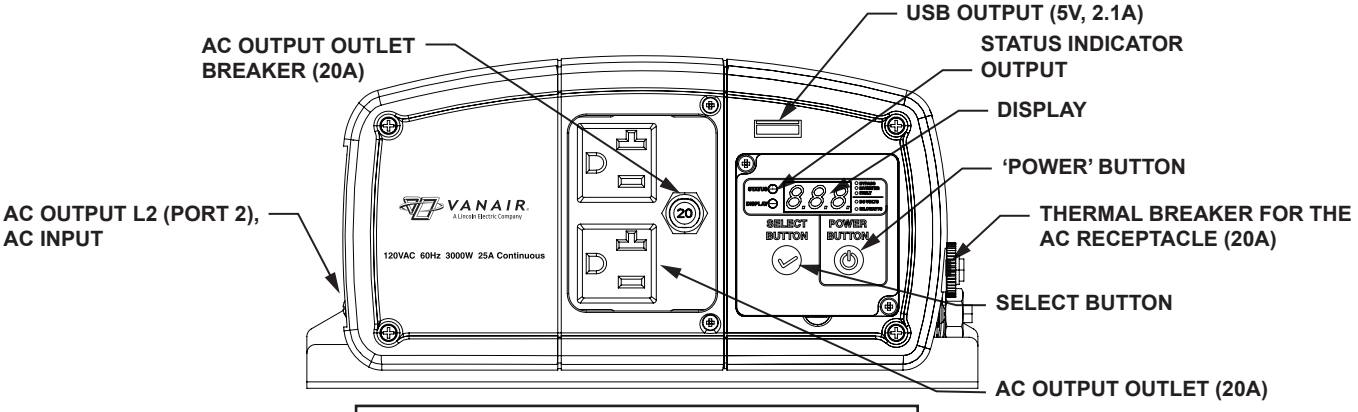


Figure 1-1: AC Output Front Panel

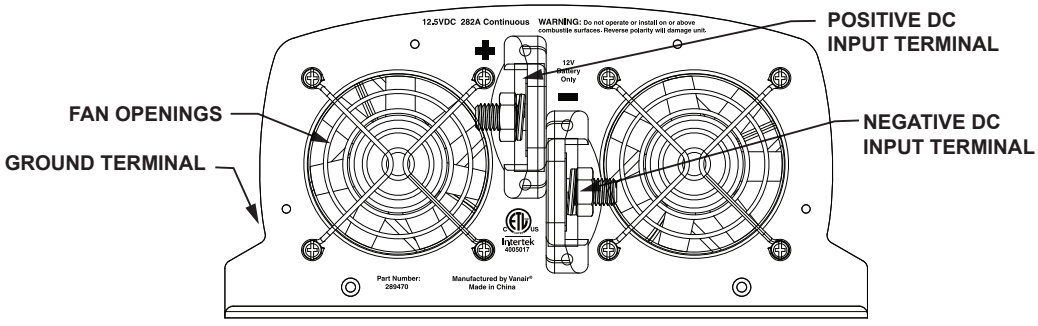


Figure 1-2: DC Input Back Panel

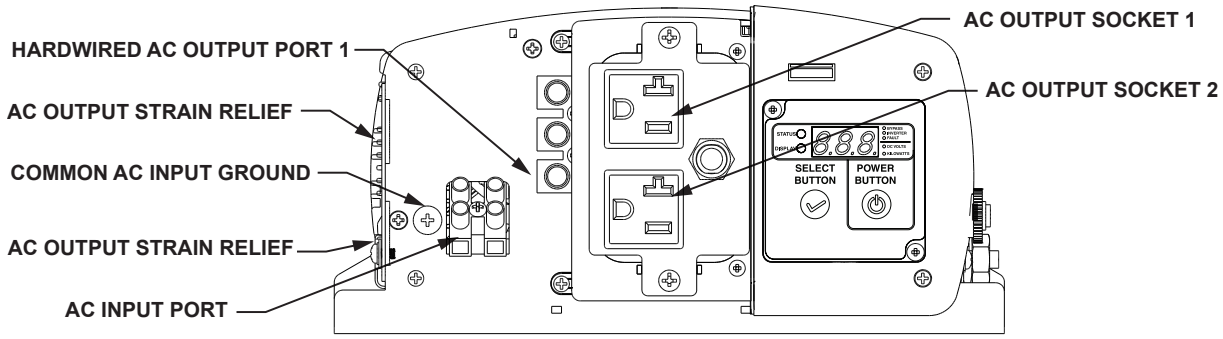
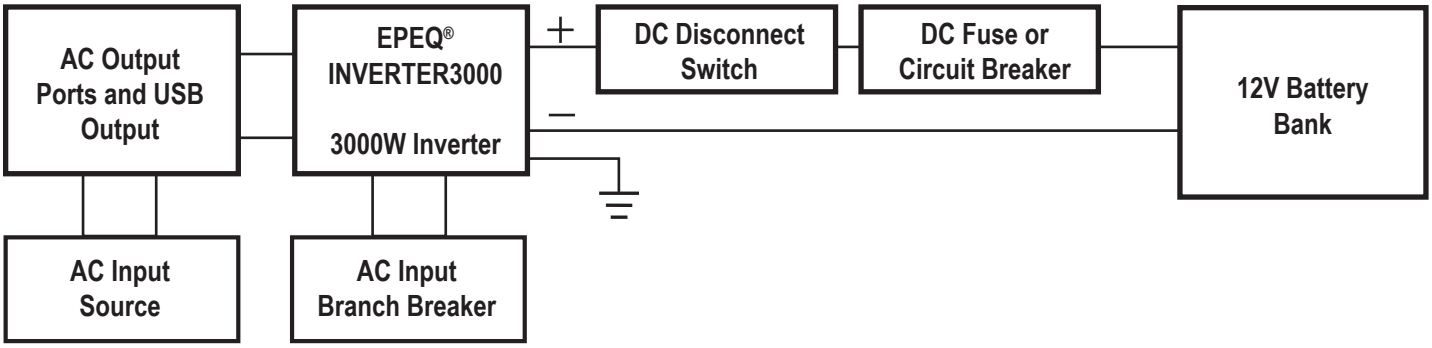


Figure 1-3: AC Output "How to Wire" Diagram

1.4.2 PREPARING FOR INSTALLATION

Typical wiring block diagram of the inverter.



1.4.3 12V BATTERY BANK

- The use of a deep cycle battery is highly recommended for inverter application.
- For battery sizing, you need to identify what you wish to operate, and for how long. It is recommended to purchase as much battery capacity as possible. See more on Battery Runtime in ***Section 1.5.3.***

1.4.4 DC FUSE OR CIRCUIT BREAKER

- DC-rated fuse of DC-rated circuit breaker connected along the DC positive line is required.

  ◊ **3000W Model 350A DC**

- Based on the size of your 12V Battery Bank, determine the overall short circuit current rating of the battery bank from the battery manufacturer. The fuse or circuit breaker chosen has to be able to withstand a short circuit current that may be generated by the battery bank.
- Typically an ANL/Class-T fuse and holder is used for the battery bank capacity lower/over 500Ah respectively.
- For Marine application, the over-current protective device needs to be installed within 7 in (17.8 cm) from the battery positive terminals.

1.4.5 DC DISCONNECT SWITCH

- Use a 12V or higher rated DC Disconnect Switch with the same or higher rating as the selected DC fuse or circuit breaker. Use ignition protected switches when required by local codes.
- The purpose of this switch is to disconnect the positive in between the unit and the battery bank during service, maintenance, or troubleshooting.

1.4.6 DC INPUT CABLE SIZE

- All DC cables require insulated, multi-strand, low resistance cable.
- The DC cables must be copper and must be rated for 220°F (105°C) minimum.
- Minimum wire size: AWG #4/0, <5 ft.

CAUTION

The use of thinner gauge or longer cable may cause the inverter to shut down under heavy load conditions. It may also melt the cable insulation and catch fire, resulting in death or serious injury.

The choice of cable size should also match the rating of the DC fuse being used.

IMPORTANT: The recommended cable length is limited to 5 ft or less. This is due to a known voltage drop between the battery and the unit. For longer cables, a proportionally thicker gauge wire is required to compensate for additional voltage drop over a longer distance.

1.4.7 CHASSIS GROUNDING CABLE SIZE

IMPORTANT: The chassis of the unit has to be grounded through the corresponding screw/stud terminal located near the negative (-) Black DC terminal. Use that screw for AC grounds.

- For Recreational Vehicle or Caravan applications, the unit has to be grounded to the vehicle chassis with a minimum AWG #8 copper conductor.

1.4.8 AC INPUT SOURCE AND AC BRANCH BREAKER

- Standard AC Input wire is required for all the AC connections between the AC source and the AC Input port, and the AC Output ports to load.
- For maximum By-Pass power rating, a minimum of #10 AWG AC wire is required. A 30A branch circuit is also required to connect between AC Input source and unit's AC Input port.

IMPORTANT: Follow the electrical and/or building code when you connect the unit to any AC source.

WARNING

ELECTRIC SHOCK HAZARD

The unit 'Power/Select' Button does not disconnect the DC power from the battery. Disconnect the DC power from the battery using a DC-Disconnect Switch or disconnect the DC positive input cable from the battery before working on any AC load/circuit plugged into the unit. Failure to follow these instructions can result in death or serious injury.

1.4.9 INSTALLATION

- Choose an appropriate mounting location.
- For indoor use, the orientation of the unit can be mounted in any direction except in the vertical position with the DC Input panel facing downward.
- Use the mounting dimensions below to mark the positions of the mounting screws. (See ***"Figure 1-4: Mounting Dimensions"***.)
- Drill four (4) mounting holes, place the inverter in position, fasten the inverter to the mounting surface.

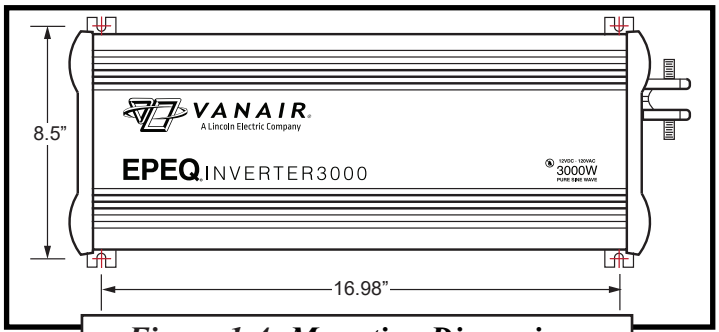


Figure 1-4: Mounting Dimensions

IMPORTANT: The tightening torque for the DC wiring terminals is 9-10 ft-lb (12-13 Nm).

1.4.10 CHASSIS GROUNDING CONNECTION

DANGER

This unit requires it to be grounded properly to the chassis. Never operate the Inverter without it being properly grounded. Failure to do so will result in death or serious injury.

- Connect the grounding cable ring terminal to the chassis ground screw or stud terminal. (See ***"Figure 1-2: DC Input Back Panel"***.)
- Connect the other side of the cable to the common grounding point.

1.4.11 AC INPUT CONNECTIONS:

WARNING

Please double check the location of the AC input port location inside the wiring compartment. Misconnecting the AC output port inside the same compartment will blow the unit and my catch fire. Before making any AC Input connection, please be sure the AC Input Source is NOT energized and the DC disconnect switch is OFF.

IMPORTANT: A Branch Breaker (not provided) is required to connect between the AC source and the AC Input Port of the unit.

AC Input Branch Breaker	AC Input Wire
30A (Maximum)	#10 AWG (Minimum)*

NOTE*: A small size AC Input wire can be used when a smaller amperages rated AC Input Branch Breaker is used upstream to feed the unit.

- Remove the AC compartment cover by unscrewing the four screws located at the front of the AC compartment cover.
- Connect the AC Input Live or Hot wire between the unit's AC Input Live 'L' or Hot 'H' Port and the AC Source Branch Breaker terminal.
- Connect the AC Input Neutral wire between the unit's AC Input 'N' Neutral Port and the AC Source Neutral terminal.
- Connect the AC Input ground wire to the Common AC Ground connection on the unit. If solid ground wire is used, the wire can be connected directly under the screen head. If stranded ground wire is used, ring terminals must be used.

1.4.12 AC OUTPUT CONNECTION

CAUTION

Please be sure that the AC Input source is not energized before making any Output connection and that the DC disconnect switch is turned OFF.

IMPORTANT: The AC Output has two types of AC connections.

1. Use of the provided AC Output Socket 1 or 2 for AC load connection:

- This configuration does not require AC Output installation. Plug in the AC load to the provided AC Output Socket 1 or 2. During the Bypass mode, each AC Output Socket is limited to 20A (rating of the related thermal breaker).

2. Use of the provided Hardwire AC Output Port 1:

- To access Port 1, remove AC compartment cover located on the front panel of the unit.
- Hardwire the AC load or any external AC socket to the AC Output Port 1. Please verify the HOT or LIVE 'L' and NEUTRAL 'N' connection on the AC Output Port.

3. Connect the AC Output Ground wire(s) to the ‘GND’ Port next to the AC Output Port 1‘N’ terminal.

NOTE: During Battery Power Mode, AC output is limited to a total of 25A.

1.4.13 DC INPUT CONNECTION

CAUTION

Reversing the DC input terminal will damage the unit and it cannot be repaired. Damage caused by reversing the polarity of the connection is NOT covered by the Warranty.

- Connect the negative (-) Black DC input cable between the inverter DC negative (-) terminal and the battery negative (-) terminal.
- Make sure the DC Disconnect Switch is in the OFF position.
- Connect a positive (+) Red DC input cable between the inverter DC positive (+) terminal and one terminal of the DC Disconnect Switch.
- Connect another DC input cable between the other terminals of the Disconnect Switch to one side of the fuse holder.
- Connect another DC input cable between the other terminal of the fuse holder and the positive (+) battery terminal.
- Install the selected fuse to the fuse holder.
- Turn ON Disconnect Switch.

NOTICE

Use cables with crimped/soldered ring lugs. Ensure nothing is placed between the DC stud terminals and the ring lugs, such as a washer. Then install the flat, pressure washer, and the nuts in that order.

1.4.14 REMOTE DISPLAY CONNECTION:

- The Remote Display on the unit is detachable. To install the remote in a different location, the provided 6-pin standard RJ-12 “rollover” cable is used.
- Remove the 2 screws at the front of the Display Panel and disconnect the small RJ-12 cable from the unit.
- Install the RJ-12 cable in your desired location and connect the RJ-12 cable to the unit and the other end of the cable to the Display Panel. Please note polarity.

1.4.15 TEST THE INVERTER CONNECTION:

- Turn the unit ON by pressing and holding the ‘Power’ Button on the main unit for about a second until a beeping sound occurs. The 'status’ indicator turns on green, indicating the inverter is ON. Check the digital display showing measured battery voltage and output power alternatively. Both AC and 5V USB are now available. (See ***“Figure 1-1: AC Output Front Panel”.***)
- Plug a small AC load like a 40W-100W table lamp or small appliance into the Inverter’s AC outlet to verify if power is available. The test AC load should work when the unit is successfully installed and functioning properly. If no power is available, check for any potential error code on the display or refer to the troubleshooting section.

1.5 UNIT OPERATION

Auto Backup Mode (Any 'PS' setting except 'PS0'):

The unit is fully automatic. When utility power is available, the unit is running in AC Bypass mode. AC output is supplied from the utility. When there is a power failure from the utility or an AC source is not available, the unit will run on battery power and the inverter will generate sinewave AC output to maintain and operate the load continuously(with ‘PS2’ setting, there is a minimum of 10W AC Load Sense threshold for the inverter to fully turn on).

Non-Backup Mode (with 'PS0' setting)

Same as Auto Backup Mode but when there is a power failure from the utility or the AC input source is not available; the inverter will not turn ON automatically. To turn on the inverter you are required to get into the setting mode to change the 'PS0' setting to 'PS1' or others. See more details in Inverter Setting.

Understanding the Display Function:

Status LED	Display LED	Display	Function/Status
Green (Solid)	Green	'12.5'	Bypass Mode. Display shows battery voltage in DC volts.
Orange (Solid)	Green	'12.5'	Battery (Inverter) Mode. Inverter is running. Display shows battery voltage in DC volts.
	Orange	'0.80'	Battery (Inverter) Mode. Inverter is running. Display shows output power in kW (800W as shown).
Orange (Flashing)	Battery (Inverter) Mode and AC Input is detected and unit will switch to Bypass mode within 20 seconds.		
Red (Solid)	OFF	E01-E12	Unit has shutdown. Display shows error code (See error code reference chart below).

NOTE: ‘Status’ LED is use to indicate the status of the unit.

- Green: Bypass Mode.
- Orange: Battery (Inverter) Mode.
- Green: Display is showing Battery Voltage in volts.
- Orange: Display is showing Output Power in KW.

NOTE: "Display LED" is used to indicate the digital display function.

Understanding the ‘Power’ and ‘Select’ Push Button Function During Normal Operation.

A beep sound will occur every time when the ‘Power’ or ‘Select’ button is triggered.

‘Power’ button function:

- Turns the inverter ON/OFF during Battery (Inverter) Mode. Press and hold it for 1 second to turn the unit either ON or OFF.

NOTE: The ‘Power’ button can be used to turn the AC Output OFF during AC Bypass Mode with ‘PS4’ setting without the need to disconnect the AC Input as per 'PS1' setting. See more on “Understanding the Unit Setting”.

‘Select’ button function:

- Check the unit setting: Press once to check or verify unit’s present set functions

1.5.1 UNDERSTANDING THE ERROR CODE

Code	Condition	Corrective Action
E01	Input battery voltage is too low and the unit has shut down.	Recharge the source battery immediately and restart the unit. See E05 below.
E02	Input battery voltage is too high and unit has shut down.	Check the battery voltage or determine if any external charge is connected to the battery bank.
E03	AC output is overloaded or short-circuited and unit has shut down.	Check the load connected to the output. Reduce connected AC load and restart the unit.
E04	Internal temperature is too high and the unit has shut down.	Turn unit off and wait for unit to cool for 15 minutes before restarting. Check that fans and air vents are working and unobstructed by debris.
E05	Input battery voltage is low and a warning occurs.	Recharge battery as the unit will shut down shortly. Check the DC wires gauge and length against excessive voltage drop triggering the E05 and then the E01 in advance of what would be using thicker gauge and/or shorter wire lengths.
E06	AC output load connected has sensed high and is close to shutdown limit.	Reduce the AC load.
E07	Internal temperature is high and is close to shutdown limit.	Reduce the load and check if ventilation system of the unit is blocked.
E12	Unit shutdown due to high temperature on transfer switch.	Reduce load and check if any ventilation of the unit is blocked.

1.5.2 AC LOAD ON POWER INVERTER

- Although the EPEQ® INVERTER3000 can provide high surge power up to two times (6000W) the rated nominal rating, some high surge loads such as medium/high surge electric motors, among other inductive ones, may still trigger the inverter protection system even though the normal load falls within the power rating of the inverter. A higher power inverter may be required for such loads.

IMPORTANT: For the EPEQ® INVERTER3000, a single appliance that requires more than 20A (>2400W) of AC power, has to be hardwired directly to the AC Output Port. AC Port 2 and the AC Output (Outlet) is limited to 20A AC current maximum.

1.5.3 ESTIMATED RUNTIME ON LOAD

Following runtimes are estimates for reference only at ambient temperatures. It is based on using different battery bank sizes. Actual times may vary. (See tables below.)

AC Load	Estimated Runtime on Different 12V Battery Bank Sizes				
	60Ah	**120Ah**	**180Ah**	**240Ah**	**300Ah**
50W	11 hr	22 hr	33 hr	44 hr	55 hr
100W	5 hr	11.5 hr	17 hr	23 hr	29 hr
200W	2.5 hr	5 hr	8 hr	11 hr	13.5
500W	49 min	2 hr	3 hr	4 hr	5hr
1000W	15 min	49 min	1.5 hr	2 hr	2.5 hr
1500W	8 min	27 min	49 min	1 hr	1.5 hr
2000W	N.R.	15 min	34 min	49 min	1 hr
Note: N.R. = Not recommended					

Following runtimes are an estimate based on the typical load using a 12V,120Ah battery bank for reference. Actual runtime may vary.

Load	Consumption	Estimated Runtime
Cordless Phone	5W	180 hr
Clock/Radio	8W	135 hr
Table Lamp (with incandescent bulb)	40W/60W	27 hr/18 hr
Freezer (8.8 cu ft)	80W	15 hr
20” LCD TV	100W	11.5 hr
Refrigerator (18 cu ft)	120W	9 hr
Sump Pump (1/2 hp)	350W	3 hr
Microwave (mid-size)	1000W	49 min
Coffee Maker	1200W	37 min

1.6 FEATURE SETTING

To understand more about the unit features, read the following section and follow the instructions to make changes to the desired setting.

Default Factory Setting:
PS (Inverter): 'PS1' - inverter enabled in standby mode with Load Sense OFF.
AL (Alarm): 'AL1' - alarm enabled.
Sd (UV shutdown): 'SdL' - Under-voltage shutdown set to low setting.

Inverter Setting	
PS0	Inverter is disabled. AC Output is getting the power from utility (AC Input) only. But when utility power is not available, the unit will not provide AC backup function from the inverter, the display automatically turns OFF in about 10 seconds. When the 'Power' Button is pressed again, the display will turn ON for another 10 seconds. To enable the inverter or turn on the backup function, the 'PS0' setting has to be changed to a different setting.
PS1	Inverter is set to standby condition with Power Save (Load Sense) Mode OFF. Unit will provide AC backup function when utility power is not available.
PS2	Inverter is set to Standby Mode with Power Save (Load Sense) Mode ON. Unit will provide continuous AC backup function only when utility power is not available AND the load connected to the output is >10W. Once it is ON, the unit will automatically return to Power Save (Load Sense) Mode when the connected AC load drops to < 3W.
PS4	Same function as 'PS1' and the ‘Power’ Button can be used to turn the AC Output ON and OFF, even with the AC input power being present in Bypass Mode. When the unit is turned OFF using the ‘Power’ Button, the display remains ON showing the battery voltage and the “Status’ LED will turn OFF.
Battery Under-Voltage Setting	
SdL	Battery under-voltage setting is set to LOW (setting used for normal operation) Under-voltage alarm: 11VDC Under-voltage alarm recovery: 11.3VDC Under-voltage shutdown: 10.5VDC Under-voltage shutdown recovery: 12VDC
SdH	Battery under-voltage setting is set to HIGH (setting to avoid battery over discharge when connected to car start battery). Under-voltage alarm: 12.1VDC Under-voltage alarm recovery: 12.3VDC Under-voltage shutdown: 11.8VDC Under-voltage shutdown recovery: 12.6VDC
Alarm Setting	
AL0	Fault and the warning audible alarm is disabled. The display panel only shows error code and the audible alarm will not sound.
AL1	Audible alarm will sound when a fault of warning occurs.
Manufacturing Default	
Fd	Reset all the settings to the manufacturing default settings ('PS1', 'SdL', 'AL1').

Enter the Function Menu for unit setting:
To enter the unit Function Menu, press and hold 'Power' and 'Select' Buttons together for about 5 seconds until a “beep” is heard.

*When you are in **Function** Menu:*

- Press *‘*Power*’* Button for 1 second to toggle between different Functions Menu selections such as ‘In’, ‘Sd’, ‘AL’ and ‘Fd’, etc.
- Press ‘Select’ Button for 1 second to enter Individual Function Set Menu, where you can make changes to the settings.
- The unit will EXIT the main menu automatically if ‘Power’ and ‘Select’ Buttons are not triggered within 5 seconds.

*When you are in **Individual** Function Set Menu:*

- Press *‘*Select*’* Button for 1 second to toggle between different setting values.
- Press ‘Select’ Button for 5 seconds to set selected setting and exit to next Main Menu.

See more details on flow chart in Appendix A.

1.7 TROUBLESHOOTING

To troubleshoot the unit, please note the error code displayed on the main unit and review the section describing “Understanding the Error Codes” in **Section 1.5.3.**

Problem	Possible Cause/Condition	Solution
No AC Output. All the LEDs and display are OFF.	The unit is OFF. **NOTE:** The 'Power' Button ON/ OFF action takes place at its release and after a “beep” is heard.	Turn the unit ON by pressing the ‘Power’ Button (when the unit is in Battery (Inverter) Mode,) or in Bypass Mode if the 'PS4' parameter is set) otherwise the unit should always turn on automatically at the moment the AC Input power is connected.
	No power coming into the unit.	Check the battery DC fuse, the Disconnect Switch (if installed), the AC Input Source and the AC 1 Input Branch Breaker is either tripped or turned OFF.
No AC Output on the AC Port 2. Status LED is Green or Orange [1].	The unit’s thermal breaker is tripped.	Check loads and reset the thermal breaker.
AC Output turns ON and OFF.	Power Safe Mode ('PS2') is enabled and AC load <10W.	The load connected must be below the AC load sense threshold of 10W +/- 25%.
No AC Output. Status LED is Red.	The unit had shut down, check Error code shown on display.	Verify the error condition and make the correction.
AC Output only in Hardwire Port 1.	Same as in [1].	AC Output Port 1 on 120V model is connected directly to the inverter output. The port is not under the tripping influence of the thermal breaker.
No AC Output. All the LEDs and the display are OFF, even in the Bypass Mode.	The 3000W requires a battery connected to the DC input terminals to maintain the proper working state.	Keep the battery connected to the unit. There will be a power drain of about 700mA from the battery when the inverter is running in AC Bypass Mode. In order to avoid draining the battery, a battery or trickle charger with a minimum of 1A is required to maintain the battery voltage.
During AC Input Power Outage, there is no AC Output power when battery power is available.	The unit is set to “Non-Backup” Mode (“PS0”) and AC Input Power is not available.	Change the 'PS0' setting to a different setting to turn the inverter ON. With the “'PS0' setting, the inverter is turned OFF. When the AC Input Power is not available and the 'Power' Button is pressed once, the display/LEDs will stay working for ≈30 seconds. With this setting, the unit will then provide AC Output Power only when the AC Input Power is available.

The unit's thermal breaker trips even when the unit is out of an overload condition.	This happens mainly in Bypass Mode when the maximum rating of the unit's breaker is exceeded. In the 3000W unit, that rating can be exceeded in Battery (Inverter) Mode as well.	For the 120V model, use the AC Output Port 1 which is out of the tripping influence of the unit's thermal breaker. Otherwise do not exceed 20A current rating on the AC Outlet Port 2.
The unit cannot be turned off using the 'Power' Button when in Bypass Mode.	This is normal. The unit has the 'PS1' (factory default) setting enabled. Use the procedure on the right to turn off the unit. **NOTE:** The 'Power' Button ON/ OFF action takes place at its release and after a "beep" is heard.	To turn the unit OFF while in Bypass Mode, first of all disconnect the AC Input that feeds the unit to force entering into Battery (Inverter) Mode. Then push and hold the 'Power' Button for 1 second after a "beep" is heard to turn the power OFF.
		Set unit to 'PS4' mode. With this setting, the Power button can be used to turn the unit ON and OFF during Bypass and Battery (Inverter) Mode.
The display doesn't work as expected (No display or showing "888") and the operation of the unit may be affected.	Loose connector, contact or pin-out problems in the RJ-12 detachable display panel cable.	A short (7") RJ-12 cable is used when the detachable display panel is mounted on the unit (factory default). Alternatively a long RJ-12 cable is provided for installing the display panel up to 25 ft away. Swap the cable you are using with the other one and check results. Replace if defective.
		Check the pin-to-pin conductivity of the cable and the corresponding pin-out as shown in "APPENDIX B".
	Excessive EMI/RFI interference (electromagnetic induction or electromagnetic radiation) emitted from an external source.	Avoid running the cable very close to motors, power contactors/relays, ballasts, transformer or high voltage devices. In high noise environments consider using metal conduits or shielded cable grounded at one end and/ or reduce the cable length.

The input battery under-voltage warning ('E05') and/or shutdown alarm ('E01') occurs in advance even when the battery voltage seems to be OK.	Make sure you are measuring the voltage directly at the DC Input terminals of the unit so as to check the possible voltage drop between the battery posts and the input terminals.	Excessive voltage drop in between the battery bank and the inverter, due to high resistance of the DC wires, battery disconnect switch, fuse or DC breaker if any. Make sure to use the recommended wire gauge and length. Try to us fuses (or DC breakers) with very low voltage drop (such as ANL type fuses, etc.)
	Battery bank with high internal resistance, resulting in a voltage drop proportional to the DC current draw from the unit.	Too much battery voltage drop due to excessive drawing current in relation to the battery bank capacity. Increase the battery bank capacity (I.e. add more batteries in parallel) and/or reduce the load being fed by the inverter. Battery damage and not being able to keep a good state of charge. Replace the battery (or batteries).
	Battery bank is getting discharged.	This is a normal condition. The 'E05' warning followed by the 'E01' shutdown occur while the battery bank is getting discharged. Charge the battery bank.
	Make sure to measure the battery voltage just before the 'E01' battery under-voltage shutdown in Battery (Inverter) Mode occurs and compare it with the corresponding voltage threshold in the specifications table. (Allow +/- 5% tolerance.)	Just after the 'E01' occurs, the battery voltage increase rapidly since the battery is not under load condition after the inverter shutdown. This is normal in all battery banks and can confuse the user thinking the under-voltage shutdown that trigger the 'E02' alarm occurs earlier at a higher voltage thresholds than the ones specified.
	The 'E05' warning and 'E01' shutdown alarm occur well in advance due to the 'SdH' setting.	If you want to extend the run time of the battery bank as much as possible without the need to keep enough battery state of charge for engine cranking purposes, make sure to set the under-voltage shutdown threshold to low values setting ('SdL' - factory default setting) other than 'SdH'.

1.8 SPECIFICATIONS

NOTE: Specifications are subject to change without notice.

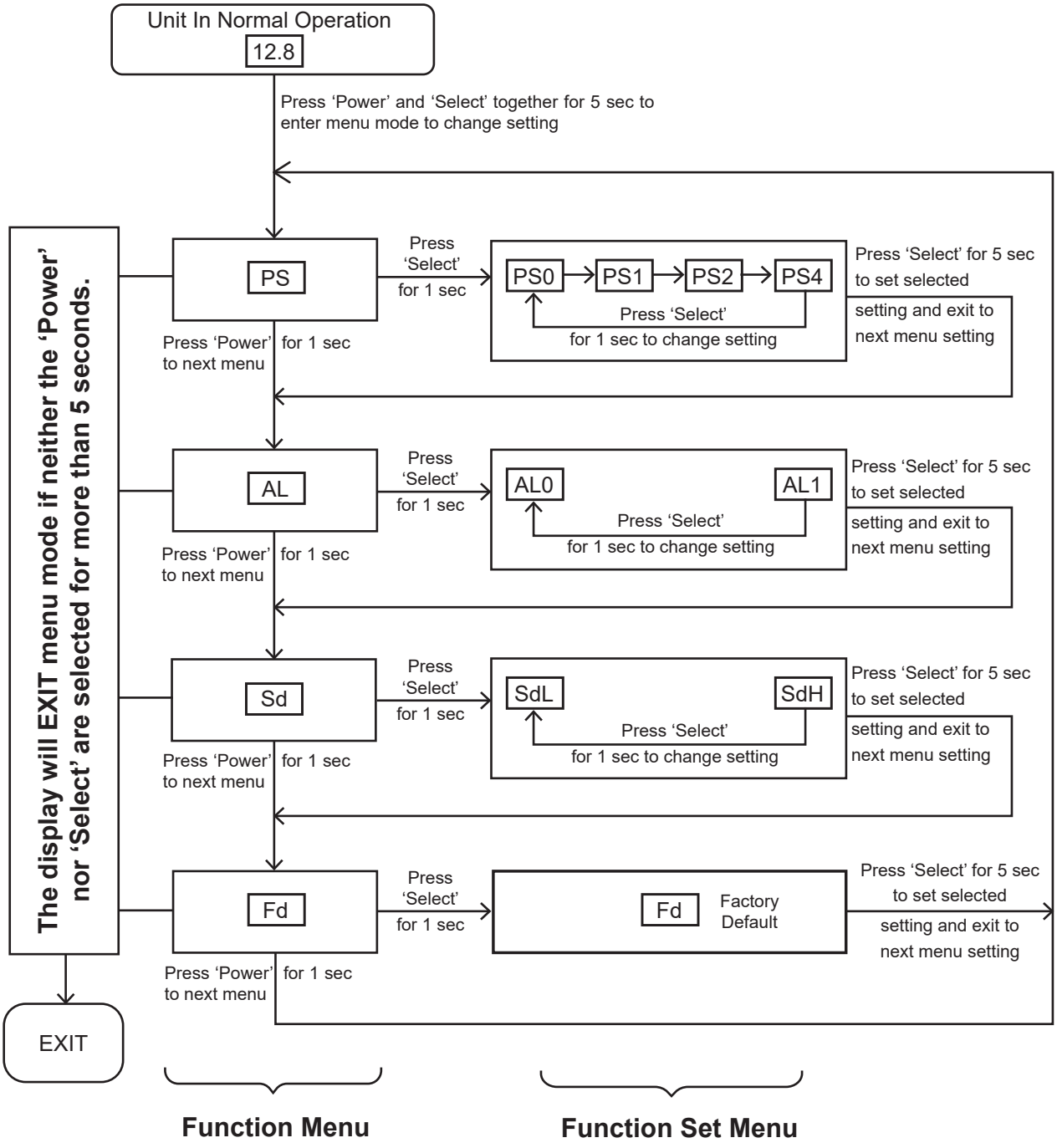
EPEQ® INVERTER3000 Specifications	
AC Output Power	3000W
AC Output Current	25.0A
AC Surge Power (Peak)	6000W
AC Output Voltage	120VAC, 60Hz
AC Output Waveform	Pure Sine Wave (<3% THD)
Nominal DC Input Voltage	12.5VDC
No Load Battery Draw	~1.2ADC (‘LS0’ setting) ~0.2ADC (‘LS1’ setting)
DC Input-Voltage Operating Range	10.5 - 15.5VDC
Under-Voltage Warning Alarm	11.0/12.1VDC
Under-Voltage Warning Recovery*	11.3/12.3VDC
Under-Voltage Shutdown	10.5/11.8VDC
Under-Voltage Shutdown Recovery**	12.0/12.6VDC
Over-Voltage Shutdown	15.5VDC
Over-Voltage Shutdown Recovery**	15VDC
USB Output	5V, 2.1A (charging), 750 mA
Safety and Environmental	
Conformance	Conforms to UL 458; FCC Part 15 Class B Certified to CSA C22.2 no. 107.1
Agency Markings	cETLus
Operating Temperature	32°F to 104°F (0°C to 40°C)
Storage Temperature	-4°F TO 140°F (-20°C to 60°C)
Relative Humidity	5-90% non-condensing
Operating Altitude	Up to 9,843 ft (3000 m) above sea level
Weight and Dimensions	
Weight	15.5 lb (7.0 kg)
Dimensions	21.5 x 9.0 x 4.75 in (54.6 x 22.8 x 12.0 cm)

NOTE*: The under-voltage alarm ('E05') is an audible warning but does not shut the unit down. The corresponding recovery voltage threshold is resetting the alarm condition, silencing the beeper if enabled and returning the display as per normal operation.

NOTE:** The automatic over/under-voltage shutdown recovery for resuming normal operation, can take place only within 30 seconds after the corresponding 'E02/E01' alarm was triggered. After that, the unit must be turned on manually by pressing the 'Power' Button.

APPENDIX A

Setting Mode Flow Chart

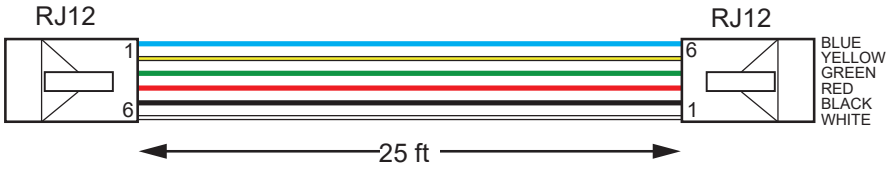


APPENDIX B

Detachable Display Panel Cable:

The display panel is detachable and can be installed away from the unit using the provided 25 ft RJ12 cable. You would need to remove the two screws indicated in the illustration below. Even though the unit can operate with the cable plugged in either direction, we suggest plugging the end with the ferrite bead EMI/RFI filter into the main unit.

The RJ12 “rollover” cable has 6 wires with the following pin-outs.



RJ12 (6-wires) Rolled over cable. (Also refered to as “rollover”.)

EPEQ® ELECTRIFIED POWER EQUIPMENT®

EXCLUDES ELiMENT® BATTERY

VANAIR® VANTAGE WARRANTY

This limited warranty supersedes all previous Vanair® warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY—Subject to the expressed terms and conditions set forth below, Vanair®, a Lincoln Electric Company ("Vanair"), of Michigan City, Indiana (USA), warrants to the original retail purchaser of new Vanair® equipment that such equipment is free from defects in materials and workmanship when shipped by Vanair®.

For warranty claims received by Vanair® within the applicable warranty periods described below, Vanair® will repair or replace any warranted equipment, parts or components that fail due to defects in material or workmanship or refund the purchase price for the equipment, at Vanair's discretion. Vanair® is not responsible for time or labor to gain access to the machine to preform work. WARRANTY WILL BE VOID IF GENUINE VANAIR® PARTS AND FLUIDS ARE NOT USED.

Vanair® must be notified in writing within thirty (30) days of any such defect or failure. **All warranty or returns must be pre-authorized in writing prior to performing warranty work.** Call Vanair® for process and forms. Vanair® will provide instructions on the warranty claim procedures to be followed.

Warranty will commence upon receipt of the Warranty Registration Card. If the Warranty Registration Card is not received within six (6) months of shipment from Vanair®, the warranty commencement date shall be thirty (30) days from the date of shipment from Vanair®. Records of warranty adherence are the responsibility of the end user.

1. Inverters: 1 Year Parts / 1 Year Labor
2. Converters: 1 Year Parts / 1 Year Labor
3. Chargers: 1 Year Parts / 1 Year Labor
4. Electric Motors: 1 Year Parts / 1 Year Labor
5. EPEQ® Lithium Welder: 1 Year Parts / 1 Year Labor
6. Alternators: 1 Year Parts / 1 Year Labor
7. Compressor Air End:
   - Rotary Screw: Lifetime with Vanair® Authorized Service Kits and Lubricants : 3 Years Labor
   - Reciprocating: 3 Years Parts / 1 Year Labor
   - Scroll: 1 Year Parts / 1 Year Labor
8. Hydraulic Pumps/Motors: 2 Years Parts / 1 Year Labor
9. 1 Year Parts/Labor on the following:
   - All electronics and controls including, but not limited to:
     (i) I/0 Boards
     (ii) Modules
     (iii) Panel Boxes
     (iv) Instrumentation
     (v) Clutches
     (vi) Solenoids
     (vii) Running Gear/Trailers
     (viii) Cooler Cores and Fans
     (ix) Battery Management Systems and Controllers

This Limited Warranty shall not apply to:

1. Consumable components, such as: shaft seals, valves, belts, filters, capacitors, contactors, relays, brushes, wire or parts that fail due to normal wear and use.

2. Items furnished by Vanair®, but manufactured by others, such as engines and trade accessories (these items are covered by the manufacturer's warranty, if any).

3. Equipment that has been modified by any party other than Vanair® or equipment which has not been used and maintained in accordance with Vanair's specifications.

4. Equipment which has been improperly installed and/or improperly operated, based upon Vanair's specifications for the equipment or industry standards.

5. Equipment installed by non-authorized or third party personnel. Vanair® products are intended for purchase and use by commercial/industrial users and persons trained and experienced in the use and maintenance of industrial equipment.

In the event of a warranty claim covered by this Limited Warranty, the exclusive remedies shall be, at Vanair's sole discretion: (i) repair; or (ii) replacement; (iii) where authorized in writing by Vanair® in appropriate cases, the reasonable cost of repair or replacement at an authorized Vanair® service facility; or (iv) payment of (or credit for) the purchase price (less reasonable depreciation based upon actual use) upon return of the equipment at the warranty claimant's risk and expense. Vanair® will pay standard ground freight for any warranty item shipped to and from Vanair® or (Vanair® designated facility) within the first year of the applicable warranty period. Any additional expedited freight cost is the responsibility of the purchaser.

TO THE GREAT EXTENT PERMITTED BY APPLICABLE LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES APPLICABLE TO THE VANAIR® EQUIPMENT. IN NO EVENT SHALL VANAIR® BECOME LIABLE FOR DIRECT, INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT OR LOST BUSINESS OPPORTUNITY), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY. IN NO EVENT SHALL VANAIR® BECOME OBLIGATED TO PAY MORE ON ANY WARRANTY CLAIM THAN THE PURCHASE PRICE ACTUALLY PAID BY THE ORIGINAL RETAIL PURCHASER.

THIS LIMITED WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER WARRANTY OR GUARANTY ARISING BY OPERATION OF LAW. ANY WARRANTY NOT EXPRESSLY PROVIDED HEREIN, IMPLIED WARRANTY, GUARANTY AND ANY REPRESENTATION REGARDING THE PERFORMANCE OF THE EQUIPMENT, AND ANY REMEDY FOR BREACH OF CONTRACT, IN TORT, OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE, OR COURSE OF DEALING ARE EXCLUDED AND DISCLAIMED BY VANAIR®.

Some states in the United States of America do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, and as such, the above limitations and exclusions may not apply to you. This warranty provides specific legal rights. Other rights may be available to you, but may vary from state to state.

In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be saved, the limitations and exclusions set out forth above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.

ALL WARRANTY OR RETURNS MUST BE PRE-AUTHORIZED PRIOR TO PERFORMING ANY WARRANTY WORK.

(844) VAN - SERV

SERVICE@VANAIR.COM

PARTS@VANAIR.COM

10896 W. 300 N.
MICHIGAN CITY, IN 46360

(800) 526-8817

EPEQ.COM

EFFECTIVE: MAY 20, 2022

VANAIR®
A Lincoln Electric Company

Warranty Claims Procedure

WARRANTIED VANAIR® PARTS

This process must be used by owners of Vanair® equipment in situations where a warrantied item needs repair or replacement under the terms of the purchase warranty. Do not return items to Vanair® without prior authorization from the Vanair® Warranty Administrator.

PROCEDURE:

Customers needing assistance in troubleshooting a system and/or returning parts, please follow the steps below.

1. Locate the machine's serial number(s) on the side of the machine.
2. Make a list of the symptoms/condition/malfunctions noticed along with any applicable temperature and pressure readings, and also the number of operational hours available:
3. Note that the above information will also need to be included on the Return Material Authorization Form; this form is necessary for warranty processing if the warranty claim is deemed valid by the service case review.
4. Contact the Vanair® Service Department by phone (1-844-VANSERV or 1-219-879-5100) to speak with a Service Technician.
5. Vanair® Service will troubleshoot the problem based on the information provided by the customer, and attempt to return the unit to service as quickly as possible.
6. If the unit cannot be returned to service, and Vanair® determines this matter is a warranty issue, the Service Technician will assign an RMA (Return Material Authorization) number that will provide for the return of the item to Vanair® for analysis and a final determination as to the item's warranty status.
7. Warranty Claims are solicited via a **Return Material Authorization (RMA)** form. This form can be requested directly from the Vanair® Service Department.
    - Once a blank RMA form has been obtained, follow the instructions given on the form to fill in the information needed. This form is used for the purpose of requesting a warranty case.
    - All of the field information (except for the bottom section block fields which includes Disposition of Goods, Notifications and Additional Notes) will be required.

IMPORTANT NOTES:

- If the part is not returned by the customer to the Vanair® Service Department within 30 days, the issued RMA will expire and become void. Any claims will be denied under this RMA number, and a new RMA number must be requested.
- All labor claims or invoices must be approved by the Vanair® Warranty Administrator prior to starting repair work along with the cost of the repair. All paper work associated with the returned item and warranty repair cost must reference the RMA number issued against the part, and be forwarded to Vanair® within 30 days of the completion of work.
- The RMA number must appear on the outside of the package where it can be seen before being returned.

IMPORTANT

Before sending a warranty part to a customer, Vanair® will need a P.O. or credit card number to cover the initial cost of the part and shipping.

After the part is analyzed and it is deemed to be covered under warranty, Vanair® will issue a credit back to the customer. All parts eligible for warranty must have the RMA number on the order at the time of purchase.

No items can be returned "freight collect". Freight costs will be addressed at the time the claim is closed. The customer pays any additional costs for warranty parts delivered using expedited services (i.e., Overnight, Next Day, Second Day, Priority, etc.).

VANLINKD®

Scan code for instant access to your **manual** and product details

290106_r0_EPEQ® 12V Inverters

Scan code for instant access to product details, product manuals,product videos, and warranty information.

VANAIR®

A Lincoln Electric Company

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vanair.com

Manual No. 090241-OP_r00_NML
Effective Date: 04/29/2026

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