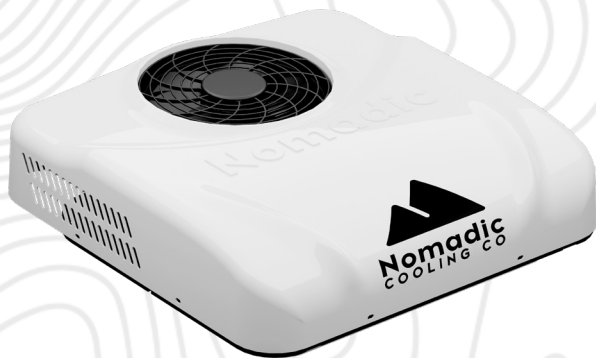




NC-X³ Install Manual

48V | 24V | 12V

Version 2.2-102423



16680 N 51st Ave Units 4 & 5
Glendale, AZ 85306
(480) 576-2489

www.NomadicCooling.com/Support

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INTRODUCTION

The NC-X³ Air Conditioner (“AC unit”) is designed and intended for installation on the roof of a recreational vehicle during or after the vehicle is manufactured.

The NC-X³ can be installed by one person with brief help from one additional person. Reading this installation manual in its entirety first will ensure the proper installation and function of the NC-X³.

 **Nomadic**
COOLING CO
16680 N 51st Ave Units 4 & 5
Glendale, AZ 85306
(480) 576-2489
www.NomadicCooling.com/Support

Keep a record of the following information:

- 48V
- 24V
- 12V

Model **NC-X³ Rooftop AC Unit** | _____

Serial No. _____

Date Purchased _____

Installed By _____

RETURNS

Nomadic Cooling will gladly accept returns within 30 days of receiving the order. Only items in their original condition with all packaging, accessories, instruction manuals, warranty cards, and UPC codes will be accepted. Any returns after 30 days are subject to approval.

Nomadic Cooling reserves the right to modify appearance and specifications without notice.



Always bench test AC unit before installing.



Check to ensure all required parts are included (see page 3).

Get social with us!



@ nomadiccooling

ITEMIZED PARTS LIST

BOX 1: NC-X3 Air Conditioning Unit

ID	Qty	Part Name	
A	1	NC-X3 Air Conditioner (color may vary)	<input type="checkbox"/>

BOX 2: Pro Kit

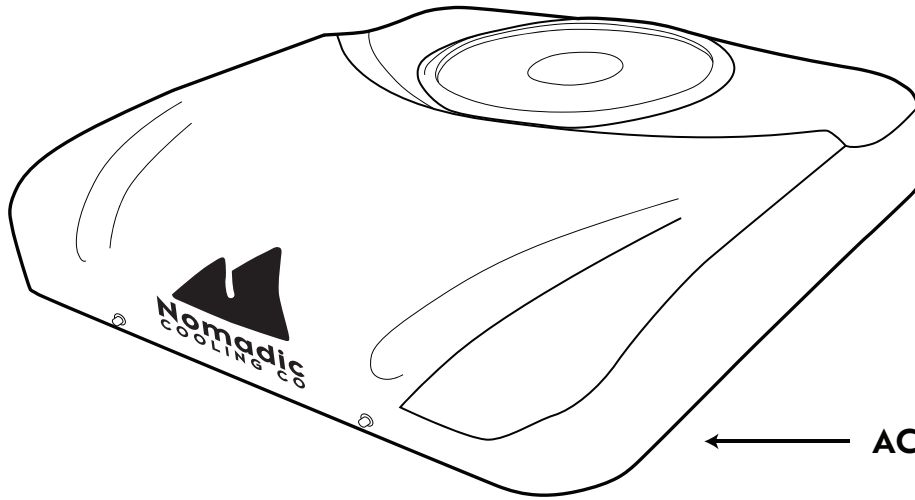
B	1	Foam gasket	<input type="checkbox"/>
C	2	Crossbars	<input type="checkbox"/>
D	1	Faceplate	<input type="checkbox"/>
E	9	Faceplate screws	<input type="checkbox"/>
F	5	Lock washers for mounting bolts (extra included)	<input type="checkbox"/>
G	6	Washers for mounting bolts (extras included)	<input type="checkbox"/>
H	4	Mounting M8 bolts	<input type="checkbox"/>
I	4	Mounting M8 nuts	<input type="checkbox"/>
J	1	Remote control	<input type="checkbox"/>
K	1	Leveling Strip	<input type="checkbox"/>
L	1	Foam air separator	<input type="checkbox"/>
M	1	Bagged and boxed control panel + wiring bundle	<input type="checkbox"/>

BOX 3: DIY Kit

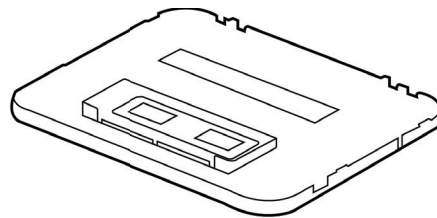
N	1	Trim ring	<input type="checkbox"/>
O	1	Bagged Anderson clip and wire harness	<input type="checkbox"/>
P	1	Bagged fuse holder and fuse	<input type="checkbox"/>
Q	1	Bagged 2 (12/24V) or 4 (48V) AWC 5/16" lugs, 3 red + 1 black heat shrink 3/4" wrap, and thread-locker	<input type="checkbox"/>
R	1	Tube of polyurethane adhesive sealant	<input type="checkbox"/>
S	20	Zip ties (10 large + 10 small)	<input type="checkbox"/>
T	10	Sticky Plates for zip ties	<input type="checkbox"/>
U	1	Wide thermo tape (5 ft) for foam air separator	<input type="checkbox"/>
V	1	14" x 14" cardboard cutout template	<input type="checkbox"/>
W	10	Washers (not used in NC-X3 install)	<input type="checkbox"/>

Representative brand name products pictured are subject to change without notice.

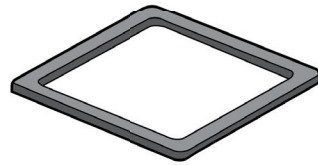




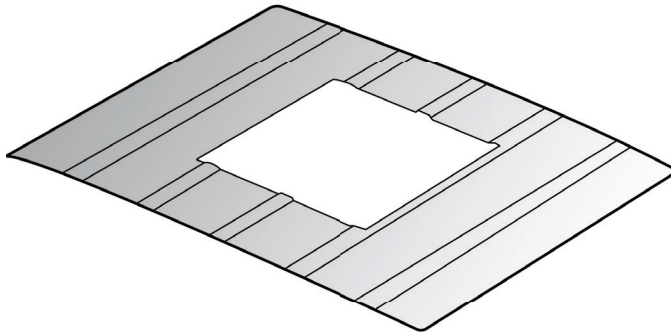
← AC Unit and Shroud



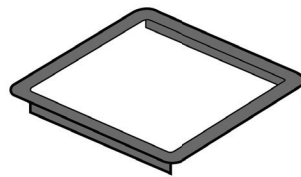
← AC Base Plate



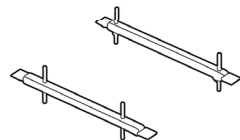
← Foam Gasket



← Vehicle Roof



← Trim Ring (DIY Kit)



← Crossbars



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IMPORTANT SAFETY INSTRUCTIONS

This manual contains safety guidelines and instructions that can aid in reducing or eliminating the risk of accidents and injuries.

A. Recognizing Safety Information

The safety alert symbol is utilized to notify potential physical injury hazards. To avoid possible injury or death, follow all safety messages that come after this symbol.

B. Understanding Signal Words

Signal words identify safety and property damage messages and indicate the degree of hazard seriousness.



WARNING is used for hazardous situations that could result injury (including death, severe, moderate or minor injury if not avoided).



NOTICE is used for situations that could result in AC unit or vehicle damage or unnecessary complications in the installation process.



HELPFUL TIP is used for useful information or best practices.

C. Supplemental Directives

To avoid potential injury and even death, read and follow all of the safety information and instructions.

Read and comprehend these instructions before installing, using, servicing, or maintaining this AC unit. Poor installation, operation, servicing, or maintenance of this AC unit can result in severe injury. Follow all instructions.

The installation must comply with all applicable local and national codes, including the latest edition of the following standards:

USA

- ANSI/NFPA70, National Electrical Code (NEC)
- ANSI/NFPA1192, Recreational Vehicle Code

CANADA

- CSA C22 1. Parts I & II, Canadian Electrical Code
- CSA Z240 RV Series, Recreational Vehicles

D. General Safety Messages

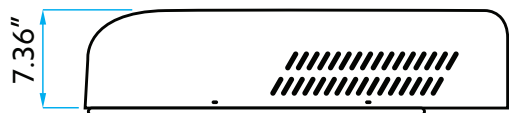
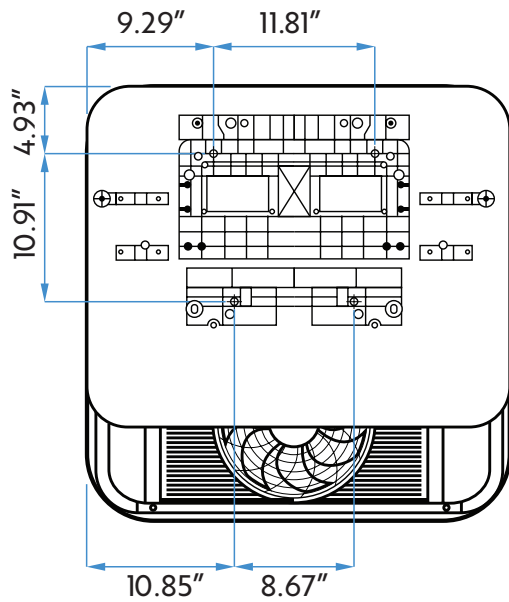
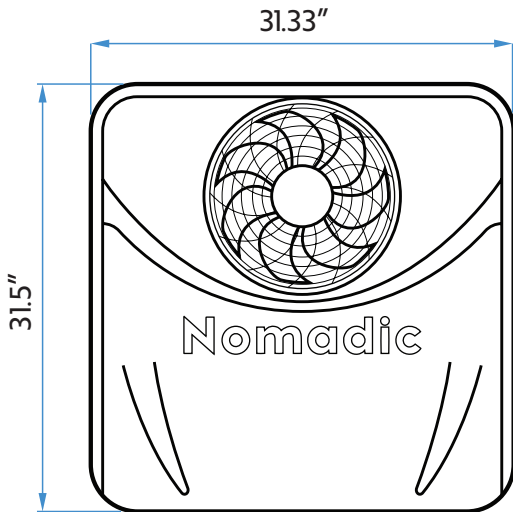
WARNING - Failure to follow the subsequent warnings could lead to death or serious injury.

- A qualified service technician **MUST** install or service this product.
- Do **NOT** modify this product in any way. Modifications can be extremely dangerous and void any warranties.
- Do **NOT** add any devices or accessories to the AC unit unless specifically authorized in writing by Nomadic Cooling Co.

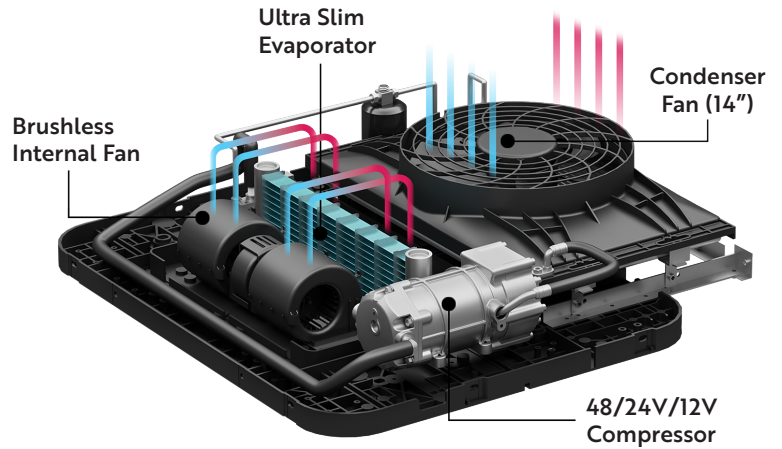


Battery Powered Air Conditioner

48V | 24V | 12V



Low
Profile



X ³ MODEL	48V	24V	12V
Current ECO Mode	14A	30A	50A
Current MAX Mode	27A	55A	110A
Rated Power	1,680W	1,390W	1,320W
Fuse Size	30A	60A	120A
Power Cord Specification	4AWG	2AWG	2AWG
Rated Cooling Capacity (BTU)	15,120	12,480	11,830
Refrigerant	R134a @ 600g ± 30g		
Refrigerant Oil	POE68		
Speed Range	1,000 to 3,000 RPM		
Weight	57.3 lbs		
Interior Faceplate Dimensions	16.25" x 16.25" (flush)		
Compressor Motor	18cc PWM, Spring Bushings		
Evaporator Motor	Brushless with 10" Fan		
Condenser Fan	14"		
Noise (Decibals)	≤60 dBa		
Operation Modes	Auto/ECO/Powerful/Fan		
Min-Max Temperature Setting	60°F to 86°F		
Warranty	Two (2) Years		

INSTALLATION STEPS

1. Mark your 14"x14" rooftop opening. DIY Kit includes a cardboard template. Cut from the exterior of your vehicle.



Never cover AC unit top fan.



When determining AC unit location, be sure to allow for the shroud (cover) when positioned on the roof.



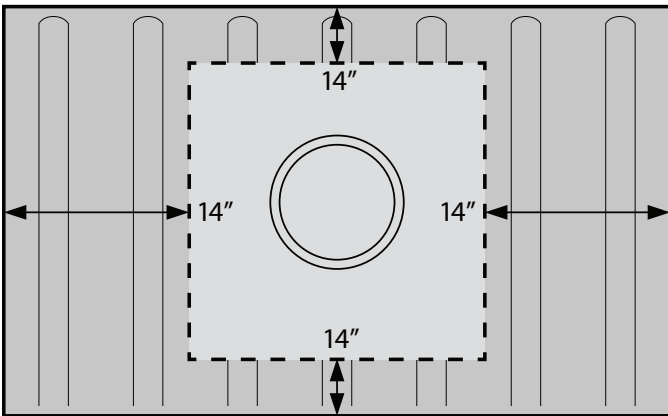
Make sure there is no electrical or other encumbrances in the way.



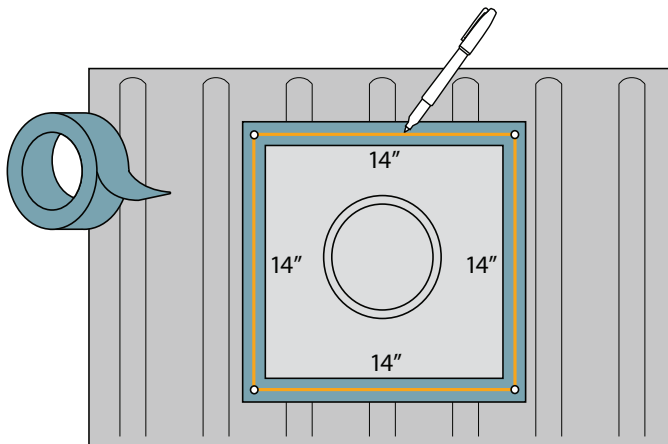
Do not cut into structural beams.

2. Make sure the planned opening is centered from all four sides. This gives the best chance for easy installation.

Vehicle Front



Exterior Roof



Exterior Roof



Use painter's tape and a permanent marker to draw your 14"x14" cutline.

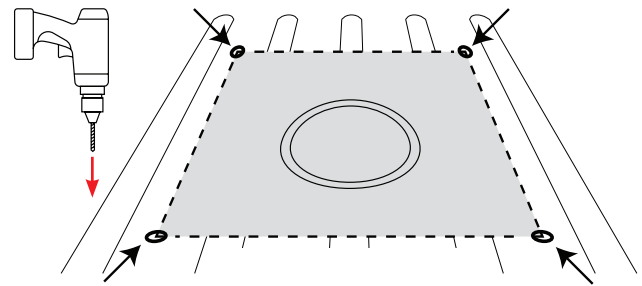


Make multiple passes with the marker.



If you make a mistake replace the tape and try again. Measure repeatedly to make sure your lines create a perfect 14"x14" square.

3. Drill each corner of your markings through the roof. This will make it easier to detect the location of your 14"x14" opening from the underside of your roof.

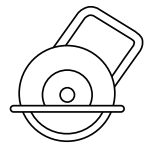
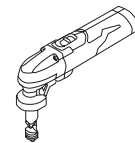
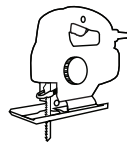


Exterior Roof

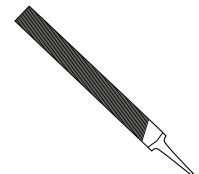
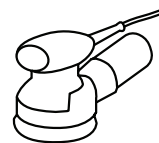


Use a 1/8" drill bit for corner holes.

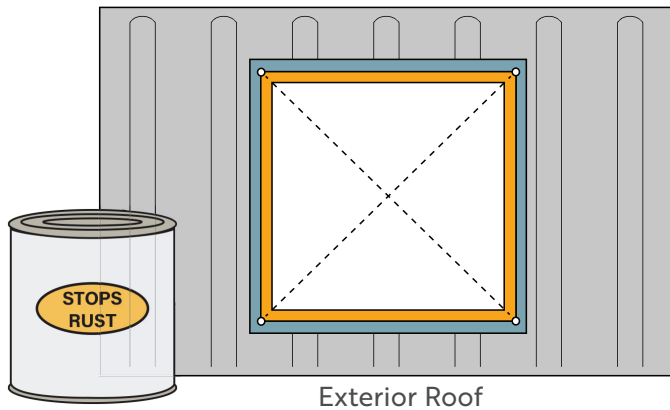
4. Cut on your lines using a jig saw, nibbler or cutting wheel.



Use a sander or file to smooth out the rough edges after cutting.

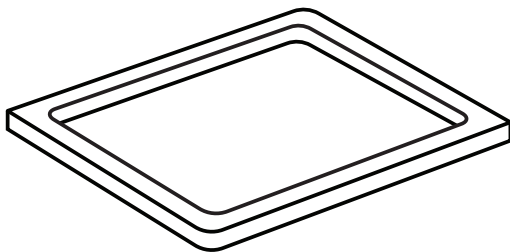


5. **Paint** around the edges of the cut roof opening to prevent rust. You can use any color rust-preventative paint.



6. **Remove tape** and clean exterior surface.

7. **Remove 14"x14" waterproof gasket** from box.



Make sure area/paint is clean, dry and clear of all debris.

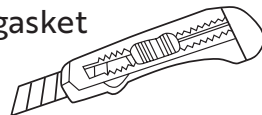


Use alcohol wipes or PrepSol to remove oil or wax from vehicle roof.

If placing gasket over a high or uneven roof surface, remove small amounts of the 14"x14" gasket to match roof contours.

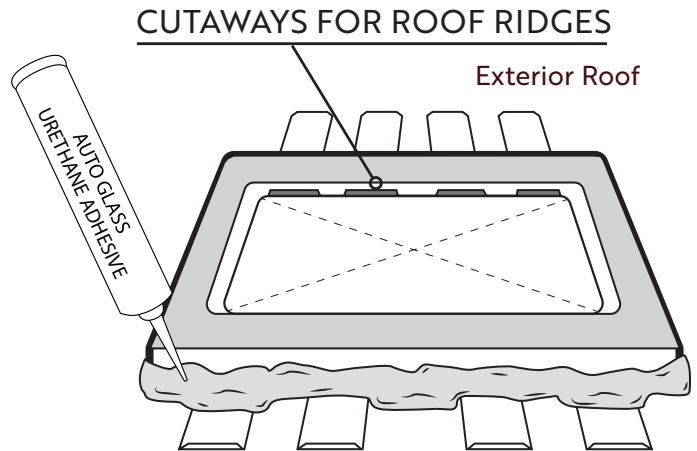


Use blade to cut away gasket if needed.



Remove gasket adhesive only after making any necessary cuts. Place the gasket sticky side down.

8. **Apply window weld/adhesive** around 14"x14" gasket, after sticking it down on vehicle roof. DIY kit includes a tube of polyurethane adhesive sealant.



9. **Place AC unit on roof** over 14"x14" gasket gently. Measure side-to-side until unit is centered on all four sides.



Be careful not to puncture, rip or tear the gasket with the AC unit's mounting bolts.

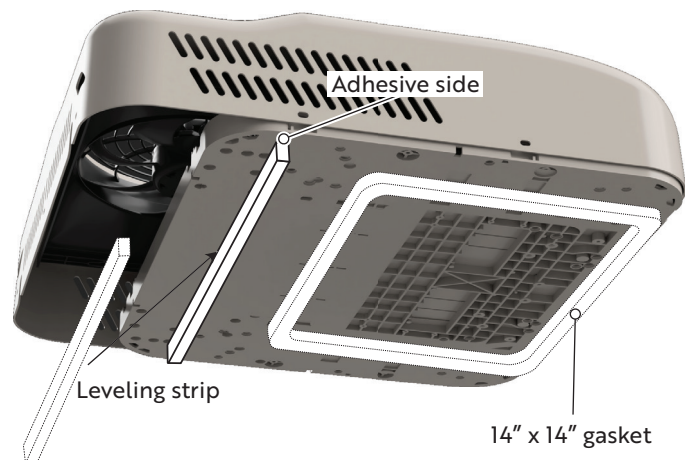


Do not put adhesive on top of gasket.



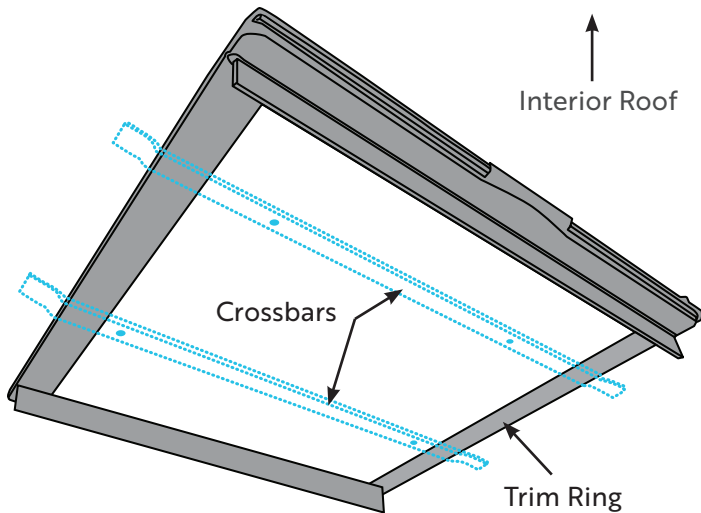
Do not damage electrical components when placing AC unit.

10. **Adhere optional leveling strip** behind the 14"x14" gasket. If you do, remove the two rubber feet at the back of the AC unit.



11. From inside the vehicle add the crossbars with mounting bolts to securely attach AC unit to the roof.

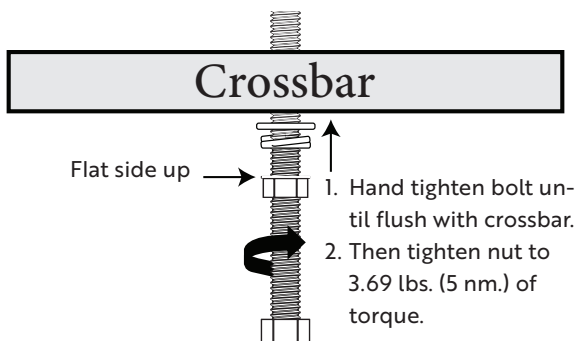
A trim ring (included with DIY kit) should be placed between the vehicle roof and the AC unit before crossbars are added.





 Do not use electric drill on crossbars.


Put the washer/lock washer on each M8 bolt and hand tighten (+1/4 turn) bolt into the AC base plate until the crossbars are secure.

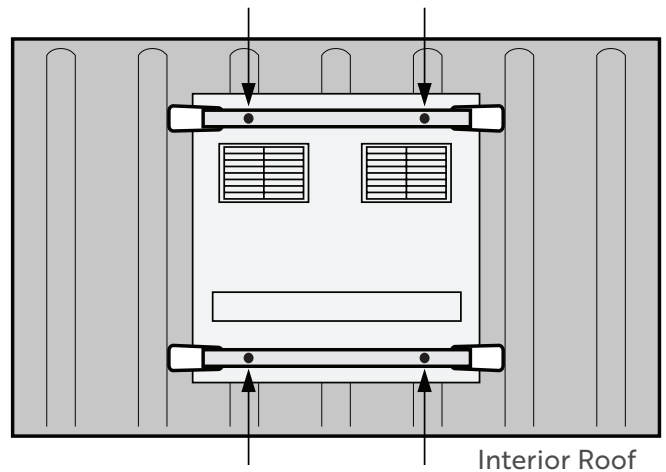
Tighten all four of the nuts to the crossbar to 3.7 lbs. of torque (~5 nm).




 AC unit will help to create pressure. When securing AC unit to the vehicle, increased compression of the gasket will level the unit against the roof. No light should be visible.

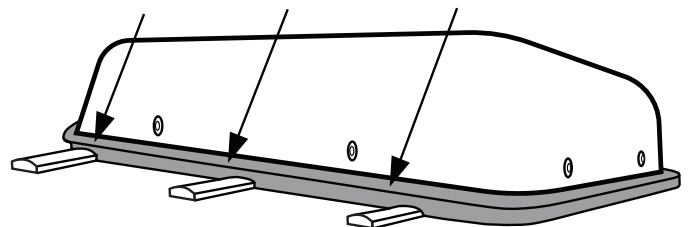
 Do not over-tighten mounting bolts. Bolts will rotate if over torqued, and may break from AC base plate.


 Over-tightening will void warranty.




 Our gaskets are used for vibration absorption. It is very high density and can't be compressed more than 10%. Use gasket tension to control AC unit's distance from roof surface.

AC unit should be resting on foam gasket and *not* on the vehicle's roof.



 Over-compression of the AC unit to the roof may cause the internal fan to rub against the fan housing.

 Be sure the fan blades rotate freely prior to starting the AC unit.

12. Install and connect LCD control panel before connecting to power to avoid blowing internal fuse.



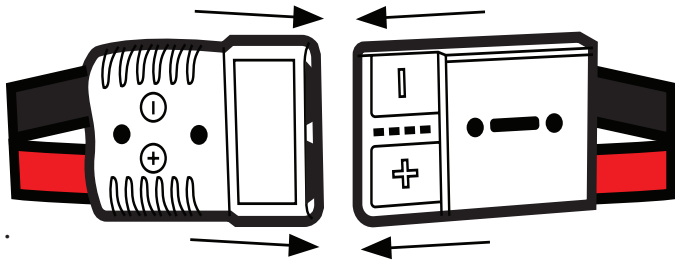
An appropriately-sized fuse must be placed between your power source and the AC unit:

48V = 30A fuse
24V = 60A fuse
12V = 120A fuse



An appropriate fuse and fuse holder are included with the DIY kit.

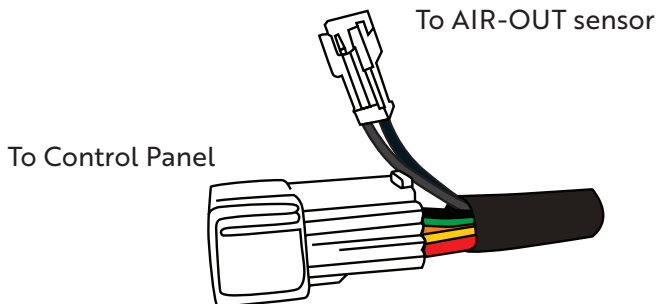
13. Connect DC power wires to unit. "Quick Connection to DC Wiring Harness" included



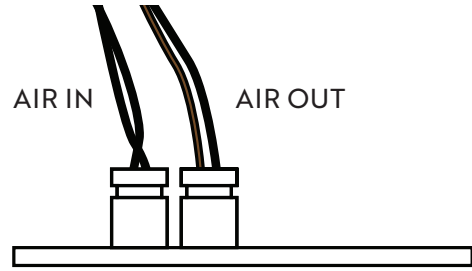
Make sure wiring is appropriately sized and is no smaller than:

2AWG for 12V/24V, or
4AWG for 48V AC units.

14. Attach LCD control panel and AC wiring harnesses.



15. Attach thermostat wires to control panel wiring harness.

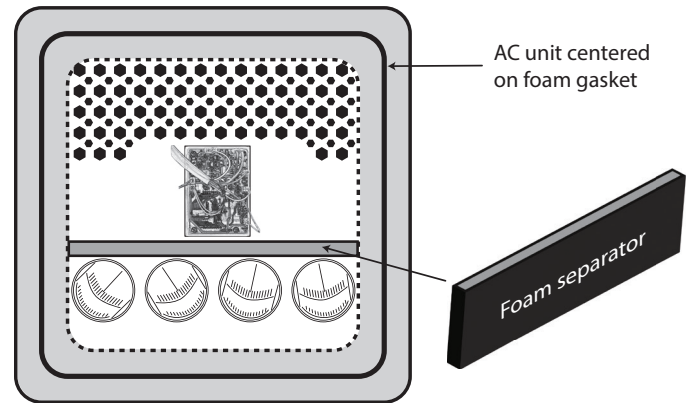


For details of control panel connections, refer to electrical wiring diagram on page 12.



Condenser is always to the left of the black wire. Be careful not to break these wires.

16. Use the foam separator to properly separate hot air from cold air as it enters and exits the AC unit.



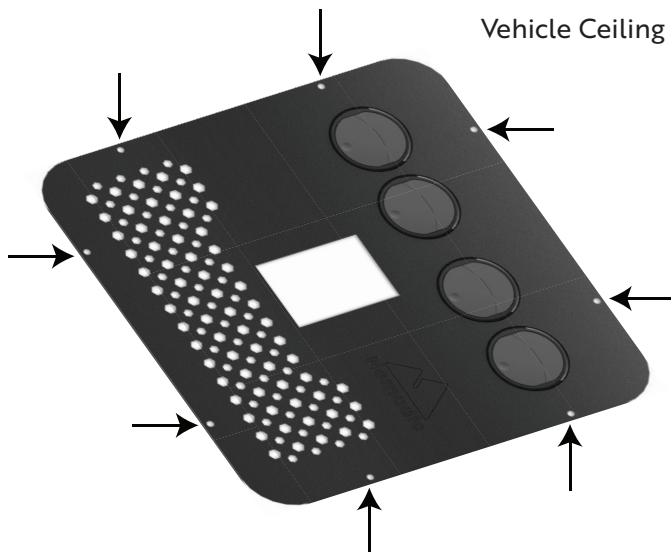
17. Use heat resistant tape to secure the air separator in place. Use your best judgment on how much tape to use and where to adhere it, as every installation is different. The tape helps the air separator keep the warm and cool air separated.

18. Test all connections between the power source and the unit for excessive heat during normal operations.

19. Install faceplate. Line up the faceplate vents with the air-out fan openings in the AC base plate. Use the 8 screws to secure the faceplate to the ceiling of your vehicle. The DIY kit screws do not require pre-drilling into the ceiling, regardless of finish or material (wood or metal).



The faceplate does not screw into the base of the AC unit. It attaches (flush) to the vehicle's ceiling directly.

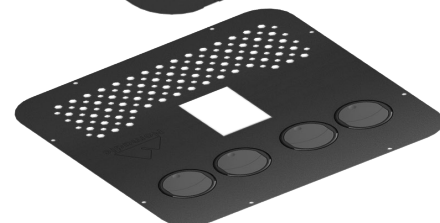
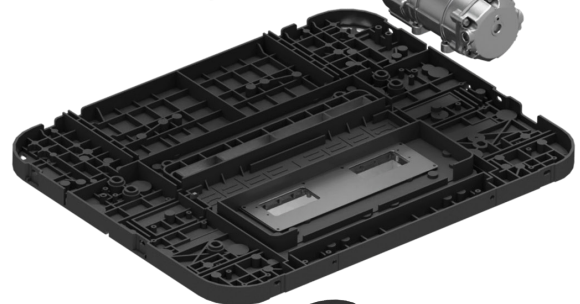
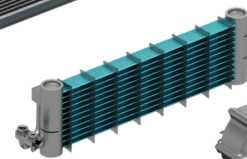
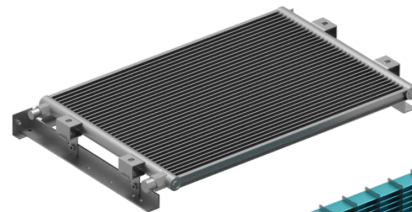
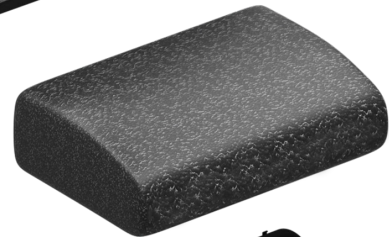
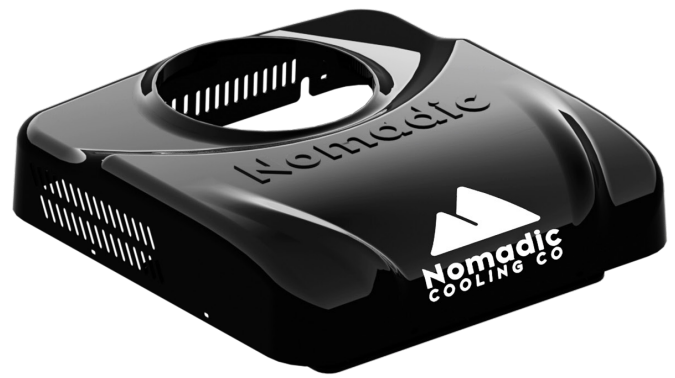


Congratulations!

Your Nomadic Cooling X³ AC unit rooftop installation is complete. Now...

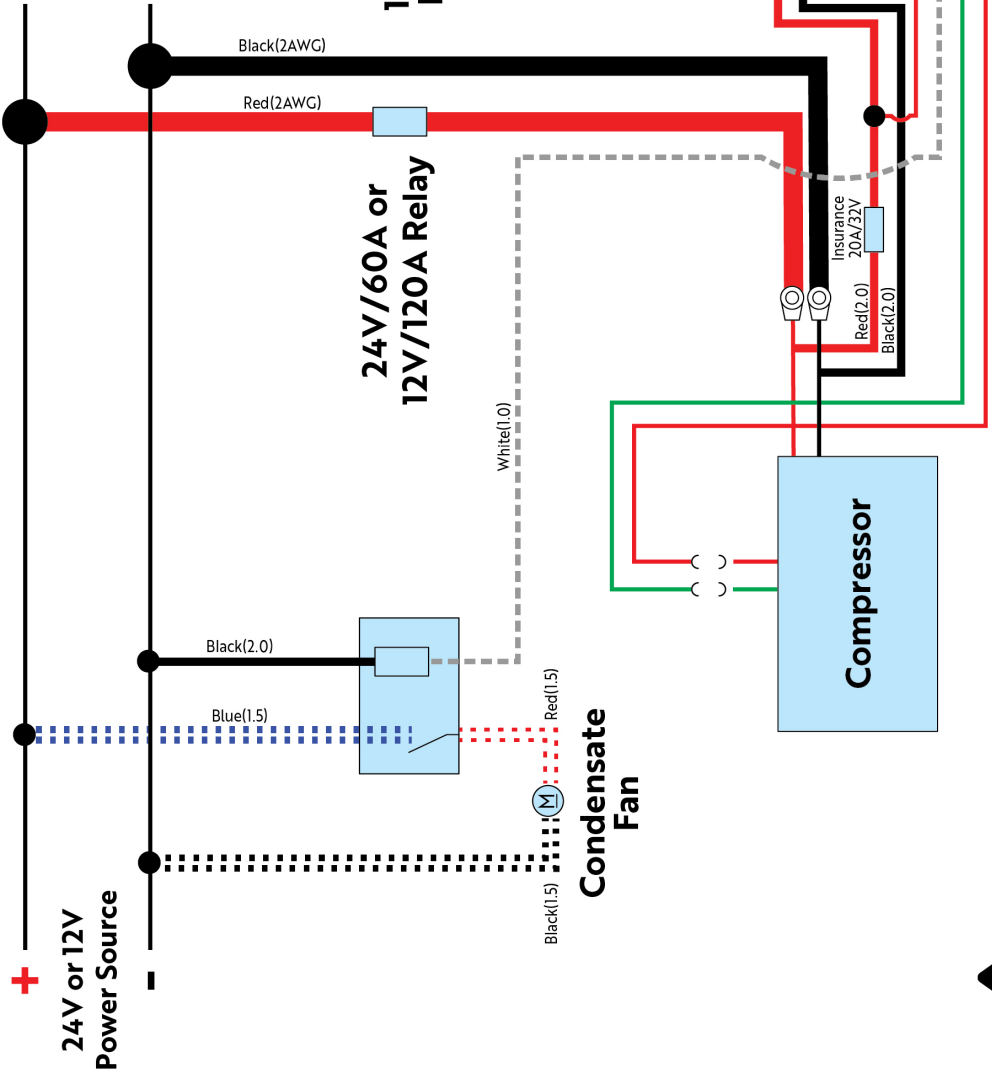
**GO FURTHER
IN COMFORT** 

Exploded NC-X³ Components



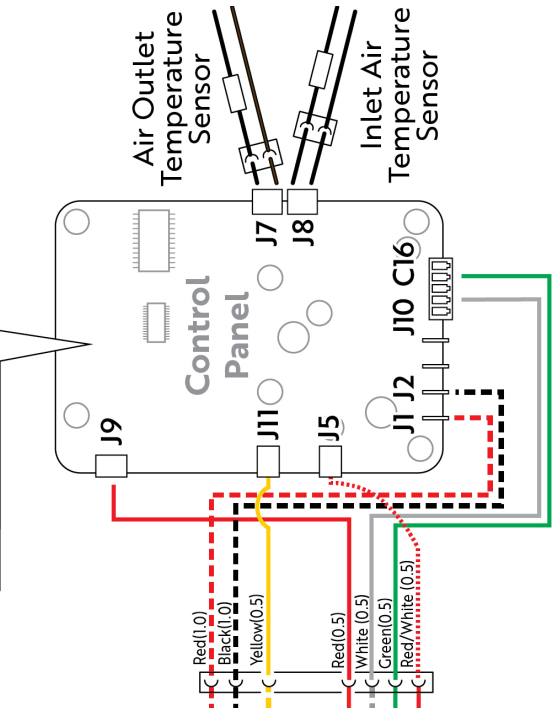
Electrical Wiring Diagram

Legend	Wire Diameter
—	24 AWG 0.5mm
- - - - -	18 AWG 1.0mm
: : : : :	15 AWG 1.5mm
—	12 AWG 2.0mm
—	10 AWG 2.5mm



Control Panel Connections

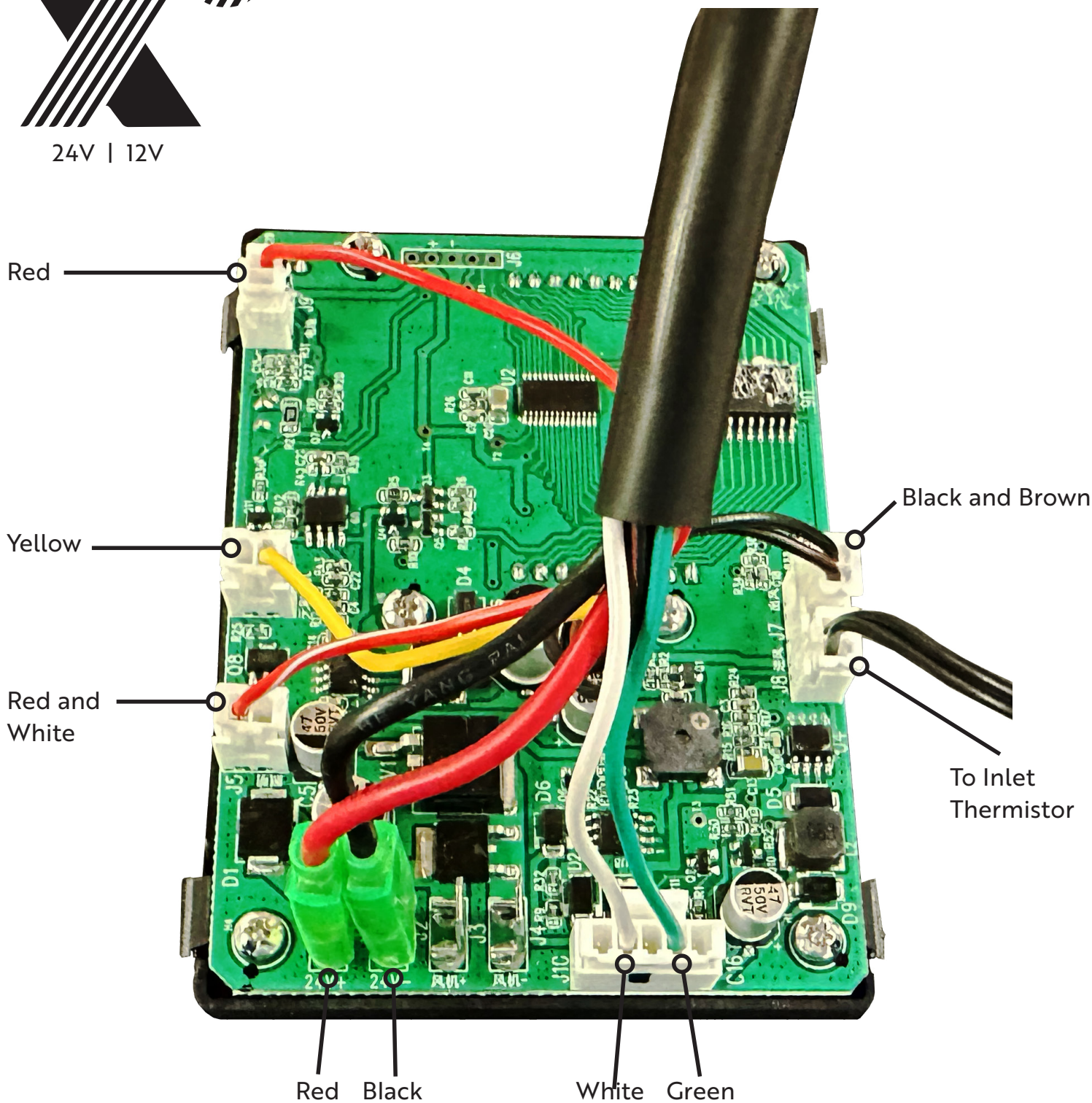
J1	1.0 Red - Power supply (24V or 12V) POS +
J2	1.0 Black - Power supply (24V or 12V) NEG -
J5	0.5 Red/White - Compressor start signal
J7	0.5 Black/Brown - Air Temp Out Sensor
J8	0.5 Black/Black - Air Temp In Sensor
J9	0.5 Red - Voltage monitoring
J10	0.5 White - Fan signal+
J11	0.5 Yellow - Brushless fan speed regulator
C16	0.5 Green - Variable signal of compressor



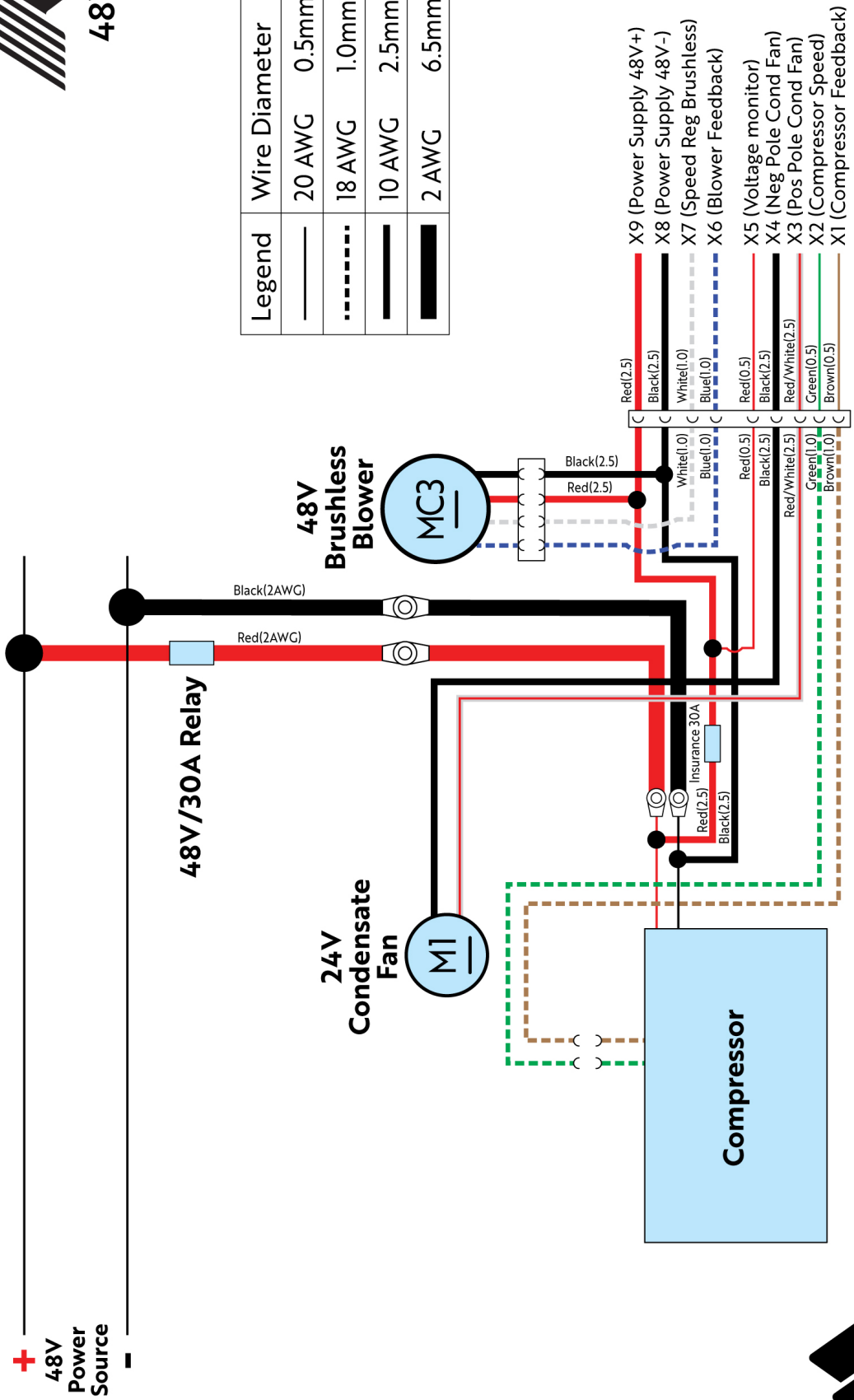
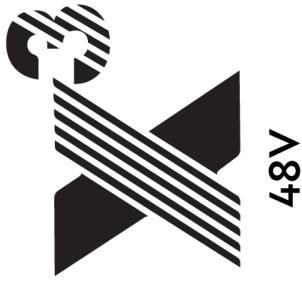
Shown below is a properly wired LED Control Panel for X³ 12V and 24V models.



24V | 12V



Electrical Wiring Diagram



Legend	Wire Diameter
—	20 AWG 0.5mm
----	18 AWG 1.0mm
— — —	10 AWG 2.5mm
— — — —	2 AWG 6.5mm



WARRANTY POLICY

Nomadic Cooling is dedicated to delivering top-quality products and outstanding customer service. We provide an industry-leading warranty for our products to ensure your satisfaction and peace of mind. Please carefully review the following warranty policy.

1. Warranty Duration:

All X³ units are covered by a two-year warranty starting from the date of purchase.

2. First-Year Coverage:

During the first year of the warranty period, Nomadic Cooling will cover the cost of shipping and exchanges for any valid warranty claims. If your X³ unit experiences any defects due to manufacturing or workmanship issues within the first year, we will promptly arrange for shipping and provide a replacement unit at no additional cost to you.

3. Second-Year Coverage:

In the second year of the warranty period, the customer will be responsible for shipping the X³ unit to Nomadic Cooling for inspection and repair. If a defect covered by the warranty is found, Nomadic Cooling will repair or replace the unit at no cost. However, the customer will be responsible for the shipping expenses associated with returning the unit to Nomadic Cooling for repair or replacement.

4. Core Charge:

If the customer wishes to have a replacement unit shipped prior to Nomadic Cooling receiving their old unit, a core charge of up to 50% of the Manufacturer's Suggested Retail Price (MSRP) may apply. This core charge is intended to ensure the return of the old unit to Nomadic Cooling. The core charge will be added to the purchase price of the replacement unit and will be refundable upon Nomadic Cooling's receipt and evaluation of the returned unit. If the warranty department determines that the defect was due to Nomadic Cooling's fault, the core charge will be refunded in full.

5. Exclusions and Limitations:

The following conditions are not covered by the warranty:

- Damage caused by misuse, negligence, accidents, or unauthorized modifications.
- Damage resulting from improper installation, maintenance, or storage.
- Damage caused by natural disasters, fire, water, or any other external factors beyond our control.
- Normal wear and tear, cosmetic damages, or minor imperfections that do not affect the functionality of the product.

6. Labor Exclusion:

Nomadic Cooling's warranty policy does not cover any labor costs associated with the inspection, repair, or replacement of the X³ unit. Any additional expenses related to labor, including but not limited to installation, removal, or troubleshooting, are the sole responsibility of the customer.

7. Warranty Claim Process:

To initiate a warranty claim, please contact Nomadic Cooling's customer support team through the provided channels on our website (www.nomadiccooling.com). Our representatives will guide you through the necessary steps and provide instructions on how to proceed with the warranty claim.

Please note that this warranty policy is subject to the terms and conditions stated herein and may be subject to change without prior notice. Nomadic Cooling reserves the right to determine the validity of all warranty claims and to make the final decision regarding repairs, replacements, or refunds.

For further information or any inquiries regarding our warranty policy, please refer to our website or contact our customer support team.

RETURNS, CANCELLATIONS AND MISSING ITEMS

Returns

Nomadic Cooling will gladly accept returns within 30 days of receiving the order. Only items in their original condition with all packaging, accessories, instruction manuals, warranty cards, and UPC codes will be accepted. Any returns after 30 days are subject to approval. Please speak with a Nomadic Cooling employee regarding your return. This can be done through email or by calling Nomadic Cooling at (480) 576-2489.

There is a 15% restocking fee for all return orders. Customers are responsible for the return shipping of any product to Nomadic Cooling. Return shipping can be arranged for you by Nomadic Cooling or can be arranged on your own but must include a tracking number. If the product arrives back to Nomadic Cooling damaged due to mishandling, poor packaging, or in otherwise unusable condition for resale then an additional fee may be assessed.

Products to be returned should be sent to:

Nomadic Cooling Co
16680 N 51st Ave Unit 4-5
Glendale, AZ 85306

Due to some products being shipped directly from the manufacturer, please check with a Nomadic Cooling employee where to send all other returns.

Returned products will be assessed for damage upon receiving at Nomadic Cooling.

Refunds will not be processed until the product is received, inspected, and/or tested at Nomadic Cooling HQ. All refunds will be processed back to the original payment method and/or store credit in the form of a gift card.

Order Cancellations

If you wish to cancel your order for any reason, please let a Nomadic Cooling employee know as soon as possible. This can be done through email or by calling Nomadic Cooling.

If you are canceling before the order has been fulfilled and/or shipped then we will process a refund back to the original payment method. If you are wishing to cancel and the order has already been fulfilled then the cancellation will be processed as a return and is subject to a restocking fee. Please see the returns section for more information. If applicable, the customer is responsible for any "stop and return" fees.

Missing Items

Upon receiving your order from Nomadic Cooling please immediately open the package and inspect the contents to ensure all items from the order were included. If you suspect that an item is missing or the incorrect item was sent please notify a Nomadic Cooling employee ASAP so we can assess the order. If you fail to notify a Nomadic Cooling employee within 14 days of receiving your order that an item was missing or incorrect then the customer will be responsible for all new shipping costs for the missing or incorrect item(s).

To better prevent orders with missing or duplicate items, and for ease of tracking, Nomadic Cooling will only be shipping orders once all items in the order are ready for shipping. Nomadic Cooling will not send partial shipments. Exceptions may occur when specifically requested by the customer and/or item(s) in the order are on backorder. Products will be shipped the same when ready unless requested held by the customer.