



YMGI, Engineered Comfort Products for A Sustainable and Efficient Green World!

SERVICE MANUAL

DC INVERTER MULTIPLE ZONE 30,36, 42,48,60k (59)5 CH SYMPHONY CHOIR OUTDOOR UNIT

Model Numbers:

- WMMS-30CH-V2B(59)5
- WMMS-36CH-V2B(59)5
- WMMS-42CH-V2B(59)5
- WMMS-48CH-V2B(59)5
- WMMS-60CH-V2B(59)5



Thank you for choosing this YMGI product. Please read the owner's manual carefully before installation and operation, and retain for your records and future reference. If you need a replacement copy, please contact your local agent or visit www.ymgigroup.com to download a current electronic version.

NOTICE

This product is designed and manufactured to be free from any defects in material and workmanship during normal use and maintenance. Installation, operation, maintenance and repair must follow all standards and professional practices for regular cooling and heating equipment, such as NEC, State, or Local Codes and all related documents/manuals provided by YMGI. Failure to follow and adhere to all codes and documentation can cause damage to equipment, property even personal injury.

Installer: Currently licensed/certified HVAC technicians only. Must Read the manual and all provided documents prior to installation. Complete and fill out all required information on the warranty registration card.

User: Retain this manual and all supplied documents for your records and future reference.

Service: Use this manual for information concerning servicing and maintenance of this product.

SAFETY WARNING

Only qualified technicians should install and service this equipment. The installation, startup, operation and servicing of this equipment can be hazardous and requires a HVAC professional who has been trained, licensed and certified. Installations, adjustments or any equipment alterations done by an unqualified person could result in serious injury and even death. When working on the equipment, observe all precautions in the provided documents, on the tags, stickers, and labels that are attached to or placed on the equipment.



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Introduction

Read this manual carefully, making sure you understand all the instructions, practices and procedures contained in this manual. Be sure you are familiar with all the safety advisories that appear throughout this manual. Your personal safety depends upon your observance of all precautions contained in this manual.

Safety advisories appear throughout this manual and your personal safety and the proper operation of this appliance depend upon the strict observance of these precautions.

The 3 types of advisories are defined in the following table:

⚠ WARNING	Indicates a potentially hazardous situation which if not avoided could result in serious injury or even death.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
NOTICE	Indicates a situation that could result in equipment or property-damage only. It can also be used to call attention to important details within this manual.

Important Environmental Concerns

Studies have shown that certain man-made chemicals can affect the earth's stratospheric ozone layer when released into the atmosphere. Refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs), may affect the ozone layer. Not all refrigerants have the same potential impact on the environment. YMGI Group advocates for the responsible handling of all refrigerants including industry replacements for CFCs such as HCFCs and HFCs.

Responsible Refrigerant Practices

YMGI Group believes that responsible refrigerant practices are important to our customers, the HVAC/R industry and the environment. All HVAC/R technicians who handle refrigerants must be certified. The Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants, the equipment and tools necessary to perform these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. HVAC/R technicians must know the applicable laws and follow them.

Disposal Notice

Do not dispose this product or its components as unsorted municipal waste, as they contain items that may require special treatment. Contact your local waste management company for details.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow established electrical codes can result in death, serious personal injury and property damage. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow the requirements for field wiring installation and grounding as described in this manual and by NEC and your state and local electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in serious injury or even death. Technicians must take the necessary precautions to protect themselves from potential electrical, mechanical, and chemical hazards and **MUST** follow all precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing or servicing this unit, technicians **MUST** put on all PPE recommended for the work being undertaken. **ALWAYS** refer to appropriate Material Safety Data Sheets (MSDS) and Occupational Safety and Health Administration (OSHA) guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate MSDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection, and handling recommendations.

If there is a risk of arc or flash, technicians **MUST** put on all PPE in accordance with NFPA 70E or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit.



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⚠ WARNING

- Instructions for installation and use of this product are provided by the manufacturer.
- Installation must be performed by authorized and licensed personnel only and in accordance with all the requirements of this manual, the NEC, CEC and any state and local codes.
- For safe operation of this unit, please read and follow all instructions carefully.
- The total operation capacity of the indoor units should not exceed 120% of the total capacity of the outdoor units if all indoor units must operate at their peak capacities all the time. Otherwise, the heating and cooling operation will be diminished and less efficient which could damage the units.
- Any person responsible for system operation or system maintenance should retain this manual for reference.
- If the unit fails to operate normally, please contact your authorized system installer or HVAC professional as soon as possible and provide the following information:
 - Data on the unit (model number, serial number and owner's name).
 - A detailed description of the unit's problem before and after the problem occurred.
- To avoid personal injury or property damage, do not disassemble the unit yourself. If disassembly is required to check the unit, contact your authorized system installer or HVAC professional as they have the experience and training necessary to perform this task.

Note: Each unit has been thoroughly tested to ensure it operates correctly before leaving the factory.

Basic Cautions and Warnings

⚠ CAUTION

All units shall be installed by an experienced HVAC licensed contractor or technician. Read all manuals before installation, startup and operation.

⚠ CAUTION

All NEC, state, local codes and installation instructions must be followed for all units, otherwise, the unit warranty will be void and could result in serious damage to people or property.

⚠ WARNING

YMGI Group is not responsible for any damage or loss due to Do-It-Yourself (DIY), self-installation or any improper installation, improper operation, improper service or natural disasters of any kind.

⚠ WARNING

Do not connect power to the unit until all wiring, tubing and all unit inspections and testing have been completed. Ground the unit according to the instructions and adhering to NEC, state and local codes.

⚠ WARNING

All wiring connections must be correct and secure. Loose wire(s) or improper contacts may cause arcs or overheating which can result in a fire hazard.





Note From YMGI – Must Read

Dear Customers, Purchasers, Installers, and Contractors

Thank you for choosing an YMGI product.

All YMGI's products are fully tested and have passed rigorous safety, performance and manufacturing standards before being packed and shipped. YMGI only uses suppliers that meet our strict standards for high quality and performance for all parts. YMGI also recognizes a quality installation is equally important therefore your system must be installed by a licensed HVAC professional. A quality installation ensures your unit will operate at its highest efficiency and peak performance for many years of worry free comfort; while a poor installation can result in unit failure and cause the unit to operate inefficiently, either immediately or over time, resulting in costly repairs.

Because a quality installation is so critical, YMGI provides detailed information in our manuals which will aid the installing technician and the owner of the unit(s).

At YMGI our goal is to ensure that your YMGI units are installed properly and correctly from the beginning.

The YMGI equipment you purchased is either a split-type or a self-contained cooling/heating system. These types of systems require a certified and licensed HVAC professional technician for proper installation. Only a certified and licensed HVAC professional technician will have the knowledge, experience, and attention for all required details to perform a complete and successful installation. This equipment is different from a window or portable type air conditioners you can purchase from local retail stores such as Home Depot, Lowe's, Sears, etc. which the manufacturer may not require certified and licensed personnel to install.

Reading and following YMGI Group recommendations and requirements contained in the following pages and other documents, is the first step to help ensure a smooth installation and proper operation of your unit for many years.

⚠WARNING

YMGI doesn't recommend nor allow any do-it-yourself (DIY) installation (partially or fully). Due to the complexity of the installation of this product most DIY installations usually have problems, either immediate or near future. These problems can cost more to fix than any upfront savings. **YMGI warranty doesn't cover any DIY units.**

If you have any questions about your unit or if the unit has a problem, you should first check the manual. If you can't find a solution, then contact your local installer or service technician to schedule a service appointment. The technician can physically inspect the unit. If at the time of inspection, the installer or service technician has any questions about the unit, they can contact YMGI technical support division directly at:

Toll Free Number: (866)833-3138 or Email: techsp@ymgigroup.com

IMPORTANT: YMGI Group is the MEDIA AUTHORITY:

YMGI Group, located in O'Fallon, MO 63366 is the author of all media produced for its products and is the only party able to give any additional explanation for any data, definitions and or descriptions found within any of its media, including but not limited to YMGI product brochures, manuals, pamphlets, catalogs, and videos. YMGI's distributors, installers, dealers, agents, customers or any other third parties will not supersede YMGI in anyway concerning YMGI-published materials and their meaning. Any concerns or questions arising from YMGI distributors, installers, dealers, agents, customers or any other third parties, should be presented directly to YMGI. YMGI will respond to any concerns or questions, if necessary, about any of its media in writing.





NOTICE

- Be sure to only hire a certified and currently licensed HVAC Company to complete 100% of the installation so that all details of the installation are performed correctly and completely.
- Be sure to have ONLY the licensed HVAC professional perform all aspects of the installation. Factory Warranty will be void if any portion of the installation is not performed by a licensed HVAC contractor/technician. DIY or partial DIY will also void ALL factory warranties.
- When hiring an HVAC technician that is offering their services as a "side job" and not hiring a licensed HVAC company may pose possible risk. This may result in an incomplete or unsatisfactory installation, no guarantee for workmanship and lack of maintenance and further service to your unit.
- Have the installation technician read in full the installation manual and all supplied documents for the product model you purchased. Details within the documentation contributes greatly to the success and quality of the installation. Experience with other manufacturers may not be applied fully to another manufacturer, although there will be similarities there will also be differences. Ignoring the provided installation procedures is an act of negligence and may cause unit failure or damage which could be irrevocable and permanent.
- It is possible for a licensed contractor/technician to make a mistake during the installation. YMGI doesn't supervise nor is able to control the contractor/technician's installation. It is critical that the installer take each variable into account during the initial installation. This will ensure a complete and professional installation and that all units work properly.

⚠WARNING

The following will damage the unit and its key components resulting in loss of factory warranty:

1. Any foreign substances introduced into the system because of failure to seal the ends of the refrigeration piping before pulling the piping through any structures at time of installation.
2. Not installing an oil P-trap in the copper suction line where the indoor unit is located 18 feet or more below the outdoor unit.
3. Cross piping and/or cross wiring of any units including more than one single zone or a multi zone system.
4. Not conducting a positive leak check prior to the negative leak check.
5. Not conducting a positive leak check by charging the system with dry-nitrogen 350 PSI to hold for 3+ hours, and performing soap bubble testing.
6. Not conducting a negative leak check by evacuating the copper lines for 30 minutes for each zone. Vacuum must be held at 500 microns or better for at least 60 minutes, starting 60-minute timer after the vacuum pump is turned off.
7. Not selecting the correct size of wire or circuit breaker.
8. Not answering ALL questions in the technician's checklist located inside the warranty registration form.

⚠WARNING

The following may be overlooked, ignored, or considered unimportant during your installer's installation, but will cause your unit to underperform and may cause unit failure.

1. Any kinks in or improper bending of the copper piping.
2. Any poorly formed flares or not centering the flare with the flare nut, or not tightening all connections.
3. Not testing each indoor unit individually.
4. Not reading technical data (temp/time/pressure/current) after the system is stabilized (normally the compressor needs to run at least 10 minutes before reading the data). If the data is read too early may lead to inaccurate assessments about the unit.

In an effort to help protect our customers from possible faulty installations that can lead to premature unit failure, YMGI provides the above information for you and the technician. You can observe while your system is being installed, even though your observation is not a guarantee your system is being or has been installed properly and professionally. With the information provided above, you will know some things to look for and questions you can ask. If at any time you feel there may be an issue with the installation, please have your technician contact YMGI at (866)833-3138 x 703 with any questions, issues or concerns you may have.





INSTALLING TECHNICIAN/CONTRACTOR'S RESPONSIBILITIES

1. Discuss with the customer detailed information about the structure to be conditioned, local weather (typical design, extreme temperature/humidity conditions, cooling and heating hours), previous and existing HVAC equipment (if any), usage and dependence on new HVAC equipment or YMGI products.
2. Performing a cooling/heating load calculation by using commercially available professional programs/methods such as Right-J (Manual J) for residential HVAC applications and Right-CommLoad (ASHRAE RTS/CLTD) for light commercial and commercial HVAC applications.
3. Contact your YMGI distributor/sales department or contact the manufacturer directly to obtain additional information to fully understand your YMGI products, including but not limited to product features, cooling/heating performance at standard ratings/conditions and extreme conditions, allowed indoor and outdoor temperature and humidity ranges, installation, operation, maintenance, service, warranty, parts and any other issues pertaining to YMGI products.
4. Select the correct (most suitable) YMGI product unit models and accessories necessary for your HVAC applications and list them in the proposal/quote, in writing, on company's quotation form or letter head, based upon the information you collected from 1), 2) and 3).
5. List your currently valid HVAC license number and EPA number in your proposal/quote.
6. Make sure you are the only party to perform the entire installation and you will not sub-contract any part of the installation to any non-licensed parties or persons. You will be solely responsible for the entire installation that you have been contracted.
7. Make sure you have all the materials you need to properly, completely and correctly finish the installation. The YMGI units and accessories may be just a portion of what you will need for the project. When support issues arise, remember YMGI employees and YMGI distributors/sales, dealers and agents are not installers and may only provide suggestions. You are the only decision maker to determine what other materials you need to complete the installation.
8. When connecting electrical wires, follow all NEC, state and local codes and ensure the installation of all YMGI units and accessories meet these requirements.
9. Connect the unit to a correctly sized electrical power source. If the unit is installed in an area where lightning or storms occur frequently, a correctly sized and type of power surge protector must be installed between the outdoor unit and the power source.
10. Select the correct types and sizes of HVAC circuit breakers, disconnect switch boxes, wires and conduit from circuit breaker to disconnect box and then from disconnect box to outdoor unit.
11. Select the proper location for installing indoor units and outdoor units with all factory requirements being followed (cooling/heating air inlets and outlets are not blocked or restricted, mounting structure is secure, installation for convenience is considered, allow adequate clearance for maintenance/service and all applicable codes are met).
12. Cap/tape the two ends of every copper line before running them through any structure to keep any foreign substances from entering the pipe causing contamination. Label them A-A, B-B, C-C, D-D, or any other identifying marks on each pair of copper lines and wiring cable sets to keep from cross-piping or cross-wiring in multiple zone installations or where pipes for different single zone systems are close to one another.
13. Secure the wiring cables that connect between the indoor unit and outdoor unit, following all applicable NEC, state and local codes for your installation. If there is no special NEC, state or local codes to govern how these wires are to be installed, you can tape/cable tie them along with insulated copper line.
14. Tighten all pipe and wire connections ensuring there is no leakage or false connections.
15. Conduct a positive pressure leakage test, checking each of the inter-connecting copper lines between each indoor unit and outdoor unit by charging with dry-nitrogen at the outdoor unit's service port (note: do not back-seat stopping valve). A liquid soap solution shall be applied at all pipe connections to check for leakage. A 1/4" - 5/16" hose/valve adaptor may be needed if you have a 1/4" traditional manifold hose connection.
16. If there is no positive leaking, then conduct a negative pressure leakage test, checking all inter-connecting copper lines between each indoor unit and outdoor unit by pulling vacuum at the outdoor unit's service port (note: do not back-seat stopping valve) and checking that the vacuum level of 500 Microns can be held for at least 60 minutes.
17. If there is no leakage found at any of the refrigeration pipe connections, flip up the indoor unit's face panel and remove filter, carefully pour some clear water onto the up-right aluminum coil surface to test if the water can drain out of each the indoor unit's freely without finding any leakage.
18. If there is water leakage found, locate the source of the leak and correct it. Only after everything is clear, engage the correct electrical power to the system.
19. Then back-seat stopping valves of the outdoor unit to release refrigerant from the outdoor unit into the inter-connecting pipes and indoor unit.
20. Make sure both the indoor unit and outdoor unit are powered on correctly, operating the indoor unit in fan mode first. Then move on to test cooling, dehumidifying/drying, heating and other modes.
21. Read refrigerant pressures and pipe/valve temperatures only after the system is stabilized (normally 10 minutes after cooling/heating mode is started successfully). Record this data into the technician checklist in the lower half section of the Limited Product Warranty Registration Card/Form.
22. Adjust refrigerant charging level (remove refrigerant if pipe is shorter, the temperature is colder; add refrigerant if pipe is longer the temperature is warmer), following the manufacturer's instructions. If the average pipe length is shorter or longer than 25' and pressure/temperature readings at the outdoor unit service valves are not falling into normal ranges.
23. Explain to the user/owner about proper unit operation and maintenance. Leave your contact information to allow them to reach you. If the customer finds the unit doesn't work properly and cannot resolve the issue themselves, check the customer's units/parts/accessories and correct the issue if there is one. Communicate with YMGI-technical support line at (866)833-3138 x 703, if further help necessary.

Following these requirements will aid in ensuring that the units to be installed meet general HVAC practicing standards and necessary factory requirements. Finding any possible problems early, preventing any further damage to the unit will help to ensure a properly working unit for many years.





LIMITED PRODUCT WARRANTY

Once the installation and successful testing of the system has been completely performed by a qualified licensed/certified HVAC technician/contractor, the registration card/form is filled out completely and correctly, and filed along with a valid installation invoice from the contractor within 7 days of the original installation, the following standard **Limited Product Warranty** is qualified: **7-years** on the **compressor** and **2-year** on **PARTS ONLY**. There is **no labor coverage**.

YMGI products are designed and manufactured free from defects in workmanship, and materials for normal use. However, if for any reason, including occasionally transporting between YMGI factories/warehouses and your delivery location, you discover the unit has issues, YMGI Group will help field a solution by following YMGI's established warranty procedures:

Compressor: YMGI will warrant the compressor of an YMGI-validated and approved warranty filing, for a period of 7 years from the date of successful installation at its original installation location.

Parts: YMGI will warrant parts of an YMGI-validated and approved warranty filing, for two years from the date of successful installation at original installation location.

All warranty compressors and parts replaced will become the sole property of YMGI Group and must be returned to YMGI Group upon request. Warranty parts may be new or refurbished. All parts are tested and approved before shipping.

At no time does YMGI Group warrant labor cost of any type. Warranty will start from the date of successful installation at original installation location, or 90 days as of original shipping date from YMGI Group, whichever comes first.

This is a standard limited liability warranty and DOES NOT cover the following:

- Any damage or repairs to properties, or persons as an incident of or consequence of improper faulty transportation, installation, operation, maintenance or service.
- Any damage caused by frozen or broken water hoses or refrigeration pipes in the event of equipment failure.
- Any damage due to floods, fire, wind, lightening, accidents, corrosive atmosphere or any other conditions beyond the control of YMGI Group.
- Any damage due to interruption or inadequate electrical service to equipment.
- Any products that are installed outside the US or Canada.
- Any unit that has been moved from its original installation address.
- Any labor costs associated with the installation or service of the unit.
- Poor unit performance due to improper unit selection (SEER, Unit size).

To validate the above warranties, ALL of the following conditions must all be fulfilled:

1. The unit was fully (100%) and successfully installed by a licensed or certified HVAC technician.
2. The unit was installed following all NEC, state and local codes.
3. The unit was installed following all the information within the Instructions and User Manuals provided by YMGI Group.
4. ALL fields, especially the technician-checklist, of the **Limited Warranty Registration Card/Form** were filled completely by the installing technician and signed by both the installing company technician and the unit owner.
5. The **Limited Warranty Registration Card/Form** and a copy of the original installing company's invoice have been received by YMGI Group-Warranty Dept., POB 1559, O'Fallon, MO 63366, within 7 days of successful installation.

**No warranty filing will be validated or approved, if any one of the above conditions are not met.
Product registration doesn't guarantee the validity of this limited warranty statement.**





Steps to follow for warranty part replacement:

1. The installing or service technician must contact YMGI tech support at 1-866-833-3138 ext. 703 from the installation location to check and confirm with YMGI Technical support the exact part(s) needed to fix the problem(s).
2. YMGI will check the customer's warranty filing. There will be no charge for Parts with a validated and approved warranty. Any Parts that have not been validated and approved or have an invalid warranty filing resulting in an unapproved warranty request, will be charged accordingly.
3. ***YMGI will ground ship out the parts ASAP. Expedited shipping is available at the customer's expense.***
4. Replacement parts that have an approved warranty registration are to be warranted for the remainder of the 2-year on parts and a 7-year compressor warranty. Purchasing of replacement parts without a valid warranty filing or unapproved warranty request, will be sold as is and are not covered by any warranty.

YMGI is continually improving products with various engineering changes and these changes are made without prior notice. Such improvements or changes include but are not limited to product specification, appearance, functionality, size, packaging, etc. These improvements or changes will not void the limited warranty stated herein. YMGI is the final authority concerning this warranty policy.





LIMITED PRODUCT WARRANTY REGISTRATION FORM

Top Portion and Keep Copy A is for YMGI Internal records. Copy B is for Installer to Fill out and Mail back to YMGI. Bottom Copy C for Customer records.

For YMGI Use Only	Date:	Shipping Packing List Number:	Registration Card Serial No.
	Did the Company Pay YMGI:	Unit(s) Work Successfully:	Yes/No
	Installation Invoice Attached to the Registration Card	Hired YMGI Recommended HVAC Contractor/Technician?	Warranty Approved
Outdoor Unit Serial Number :		Indoor Unit Serial Numbers:	Unit 1 Unit 2 Unit 3 Unit 4 Unit 5
			Unit 6 Unit 7 Unit 8 Unit 9 Unit 10

Contact at Installation Location:

Name:	Phone:	Fax:
Address:	Email:	
City:	State (Province):	Country:

Contact of the Installing HVAC Contractor/Technician:

Technician Full Name (Print):	Phone:	Fax:
HVAC Technician's Company:	Email:	
Company Address:	City:	State (Province):
Currently Licensed/Certified HVAC Technician License or Certification Number:	License Approved/Certified by:	
Official Phone # to Check the License Validity:		

Checklist for Installing HVAC Technician to Verify Installation Quality, and for Warranty Processing Purpose (If not filled out completely by technician, warranty will be voided)

1) Did you install the whole system? If not, please note below.	15) Where is the outdoor unit located? Ground wall balcony roof other location or pad	Is the outdoor unit anchored to ground or secured onto wall bracket? Yes No
2) What had been done, prior to your arrival?	16) Have you checked to make sure there is no cross-piping and/or cross-wiring between any two indoor units (zones)? What was your procedure?	
3) Did you read the User Manual and Installation Instructions before starting the installation?	17) Were the refrigerant pipe ends capped or sealed, prior to running them through structures to keep debris from entering the copper lines?	
4) Who unpacked the unit and accessory boxes to check for damage?	18) Have you checked both cooling and heating on all indoor units individually to ensure proper function? Yes No	
5) Supply electrical power V/Ph/Hz measured at wiring terminal block of Indoor unit: Outdoor unit:	19) Did you charge the inter-connecting copper pipes and indoor unit with nitrogen to check for positive leakage (pressures 150-200PSI), before conducting a vacuum leak check? Yes No	
6) Incoming electrical power V/Ph/Hz measured at terminal blocks of Indoor unit: Outdoor unit:	20) Did you vacuum correctly to check the connecting pipes and indoor unit for leakage? What was the micron gauge reading, for how many minutes?	
7) Wire gauge, length and terminal colors between circuit breaker/disconnect switch to outdoor unit:	21) Did you check the compressor's start and stop sequences to determine proper functionality? Yes No	
8) Wire gauge, length and terminal colors between each indoor and outdoor unit: Unit A Unit B Unit C Unit D	22) If copper length were not made to the supplied or recommended refrigerant pipe length, how much refrigerant added or deducted?	
9) The size of HVAC circuit breaker/fuse or disconnect switch to the outdoor unit:	23) Measured refrigerant pressures at outdoor service suction valve, when unit was stabilized. Heat pump (PSI): Cooling (PSI): Outdoor Ambient Temp. (°F):	
10) Are the inter-connecting wires and copper lines between indoor and outdoor units installed/covered/protected by line set covers, or anything else?	24) What were the measured temperatures (probe not touching any metal): At cooling: indoor return air °F Discharge air °F and outdoor °F At heating: indoor return air °F Discharge air °F and outdoor °F	
11) What is the refrigerant pipe length between each indoor unit and the outdoor unit? Unit A Unit B Unit C Unit D	25) Have you checked all unit functions with customer present, and all functions are working correctly? Yes No	
12) Where is/are the indoor unit(s) located? (Bedroom, kitchen, etc.) Unit A Unit B Unit C Unit D	26) Did you show the user how to operate the unit? Did he/she understand you? Yes No Yes No	
13) What is the elevation difference between each indoor unit and the outdoor unit? Unit A Unit B Unit C Unit D	27) Do you provide regular one-year free technical service for this installation? Yes No	
14) Did you check the indoor unit for condensate leakage and refrigerant leakage, before and after connecting them? Yes No	28) Do you list the working details in the invoice and leave a copy to the customer? Yes No	

Installation Finished and Unit Works Successfully. Print Name of Installation HVAC Technician: Signature: Date and time:	Installation Finished and Unit Works Successfully. Print Name of Owner: Signature: Date and time:
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By signing above, I acknowledge the liability and responsibility for any false statement or omission of facts, and I authorize YMGI to verify the details provided above, and make its decision on warranty. I understand our filing or filling out of the warranty card/form DOES NOT imply automatic warranty approval, because warranty is approved only to qualified and successful installations by a qualified HVAC technician. I understand that the warranty (if approved) is a standard 5 year compressor and 1 year parts only, and does not include any labor coverage. I agree to and will follow all the contents contained in the Limited Product Warranty Policy of YMGI, and no other entity, stated in public, including but not limited to manuals, web site, email, etc.

Important Note: A copy of the installing HVAC company's invoice to show all their work details, your payment proof, center copy B of this registration card filled out after a successful installation, all three (3) MUST be mailed together to Warranty Dept., YMGI Group, POB 1559, O'Fallon, MO 63366, for warranty processing. Customer keeps bottom copy C. YMGI will check against copy A that was kept at YMGI.





WHY DOES YMGI GROUP REQUIRE INSTALLATION AND SERVICE TO BE PERFORMED 100% BY CURRENTLY LICENSED OR CERTIFIED HVAC TECHNICIANS/CONTRACTORS?

1. Expertise and Safety:

They have the training and experience to accurately and safely install and service your equipment. The equipment runs with high-pressure refrigerant, oil and electrical current. The copper lines must be installed properly to prevent leakage and foreign substances from contaminating the refrigerant system.

2. You will save money in the long run:

If any problem occurs with the unit that has been fully installed by a currently licensed or certified technician/contractor, contact the original licensed or certified HVAC technician to evaluate the unit as they have the training and experience to correct the problem quickly and efficiently. A technician may be unwilling to repair an issue on a unit that they did not install. If you do find a technician willing to perform this service, there is an increased possibility of higher service fees, increased service visits, or delayed service from that technician.

3. It's the law!

The federal, state and/or local government and authorities have various governing laws or regulations, guidelines, ordinances, etc. These laws may require only licensed or certified professionals can install and service this type of high pressure HVAC equipment.

SUGGESTIONS TO AID YOU IN HIRING AN HVAC CONTRACTOR:

1. Hire a currently practicing, licensed/certified HVAC professional technician/contractor. Technicians, who are no longer practicing (retired, etc.) in this field, may not have current technical knowledge or may lack experience on the equipment you have purchased.
2. Hiring a licensed technician to install your unit as a "side job" and not hiring a licensed HVAC company may pose possible risk. This may result in an incomplete or unsatisfactory installation, no guarantee for workmanship and lack of maintenance and further service to your unit.
3. Hire a technician/contractor who services customers in your local area and one you are familiar with. Local contractors have a faster response time and it will be easier for you to determine if they are reputable.
4. Use only a reputable licensed/certified HVAC installation professional to prevent any unexpected charges because of unethical business practices.
5. Check their references, verify they provide professional service for their customers. N.A.T.E or A.C.C.A certified technicians are strongly recommended.
6. Some contractors/technicians may not feel comfortable about installing equipment that has been purchased by someone other than themselves. They prefer to purchase and install the equipment themselves. You can contact YMGI directly to check and see if there are contractors in your area who have installed our products or any similar products.
7. Ask for a detailed quote for the complete installation project. A flat rate quote is the safest contract for both you and the contractor.
8. Local HVAC technicians may charge you on a project basis or on an hourly basis. It has been our general experience; **a full single head installation normally can cost \$800 to \$1500**. These costs are estimates, and your actual costs may differ due to your specific job requirements and installation location.
9. Number of hours can vary depending upon each individual situation, some factors are, but not limited to:
 - Difficulty or complexity of securely installing the indoor unit.
 - Difficulty or length of the inter-connecting pipes and wires to be installed.
10. A successful installation is dependent on all these suggestions and all the necessary steps are followed.
11. If the contractor(s)/technician(s) are experienced with the systems/brands you purchased. **You might save on the installation cost, but remember to always ask for and verify references.**
12. The contracts should list and detail all work to be performed and the standards they will follow. Some contractors are willing to include a 1-year installation/service warranty at no extra charge. Check to see if this is an available option. If available, make sure it is included in the contract.
13. Verify and confirm the installation is completed and all the unit functions have been tested and working properly. All items on the checklist should be checked and clearly marked in the warranty registration card/form, prior to paying the contractor in full.

The cost of not having your unit professionally installed can be more expensive than the additional cost of hiring a certified contractor. Protect your investment and warranty eligibility by doing it right the first time.



⚠WARNING**Safety Precautions**

1. Follow these instructions to complete the necessary installation process. Carefully read this manual before installation and unit startup or servicing.
2. Wire size of power cord should be properly sized to meet the required electrical loads. Should the power cord get damaged, the power cord should be replaced with a manufacturer approved cable.
3. After connecting the power cord, attach the electric box cover and secure properly.
4. Always meet the nitrogen charge requirements when welding pipes.
5. Never short-circuit or cancel the pressure switch as this will result in damage to the unit.
6. Connect the wired controller before energizing, otherwise the wired controller cannot be used.
7. Before using the unit, verify the piping and wiring are correct. This will avoid water leakage, refrigerant leakage, electric shock, or fire etc.
8. Do not insert fingers or objects into the air outlet or inlet grille.
9. Open a door or window for ventilation for allowing fresh air to enter the room to avoid depleting the oxygen while gas/oil supplied heating equipment is used during the installation.
10. Never start up or shut off the unit by means of directly plugging into or unplugging the power cord from the power outlet.
11. Turn off the unit after it runs at least five minutes, otherwise it will influence the oil return of the compressor.
12. Do not allow children to operate this unit.
13. Do not operate this unit with wet hands.
14. Turn off the unit or disconnect the power supply before cleaning the unit. This will avoid possible electric shock or personnel injury.
15. Never spray or splash water towards the unit. This can cause a malfunction in the unit or can result in electric shock.
16. Do not expose the unit to moist or corrosive environments.
17. While operating in cooling mode, do not set the indoor unit's room temperature too low.
18. YMGI Group recommends that only properly trained and authorized personnel be allowed to repair or service the unit. Improper repairs or servicing can result in electric shock or fire hazards. Please contact YMGI Group if you need help locating a qualified repair or service technician.
19. Before installation, check the power supply to ensure it is sufficient to meet and is in accordance with the requirements specified on the nameplate of the unit. Ensure the power overload is functioning correctly and make sure it is properly maintained.
20. Installation must be performed only by an authorized installer or HVAC professional in accordance with the requirements set by the NEC and CEC. Do not attempt to install the unit yourself. Improper handling may result in water leakage, electric shock, fire, and voiding of the warranty.
21. Be sure to use only approved accessories and parts to prevent water leakage, electric shock and fire.
22. Make sure the unit is grounded properly prior to connecting to power source, to avoid electric shock. Do not connect the ground wire to a gas pipe, water pipe, lightning rod or telephone line.
23. Energize the unit for 8 hours before operation. Turn off or disconnect the power within 24 hours to prevent short-cycling (to protect the compressor).
24. If refrigerant leakage happens in a confined space during installation, ventilate immediately. Poisonous gases can occur if the refrigerant gas is exposed to fire.
25. Volatile liquids, such as paint thinners or solvents if exposed to the unit's surface will cause damage to the surface finish. Only use a soft cloth along with a mild non-abrasive detergent to clean the outer casing of the unit.
26. If the unit does not operate normally or if you notice any type of burning odor, power off the unit and turn off the main power supply, then immediately contact your YMGI authorized repair service center or HVAC professional.



NOTICE

YMGI Group will not be responsible for any personal injury or any property damage caused by improper or incorrect installation, improper service or maintenance or by not following the instructions listed in this manual.

DO NOT pull on the power supply cords or refrigeration lines that are connected to the indoor and outdoor units. Install the power supply cords and secure them into position. PVC line set cover is recommended for the outdoor unit to protect against rain, sunlight and accidental damage.

DO NOT allow cold air to blow directly onto people for a prolonged period, as this could make people cold and uncomfortable.

DO NOT undersize any of the power supply wires.

DO NOT connect several units to a single breaker. Don't undersize or oversize the circuit breaker. A poorly sized circuit breaker can cause unit failure and even fire.

DO NOT wire or open a unit while the unit is running. Make sure to disconnect the power supply and switch off all circuits prior to inspecting or servicing the unit. Inspecting and servicing the unit while the power supply is connected, and the circuits are switched on could cause an electrical shock or fire.

DO NOT install the indoor unit near any cooking surfaces, in direct sunlight or any ventilation systems. Poor placement could decrease efficiency and waste energy.

DO NOT install the unit in places where there is exposure to flammable materials or gas.

DO NOT apply chemical solvents, flammable insecticides, or abrasive materials directly on the unit. Clean the unit only with a soft dry cloth.

DO NOT install the unit in a damp laundry room or near flammable gas. All units must be protected by a certified electrical circuit breaker in accordance with all safety and electrical codes.

DO NOT use the system for anything other than what it was designed.

DO NOT store or install the units near food, paint, or other chemicals.

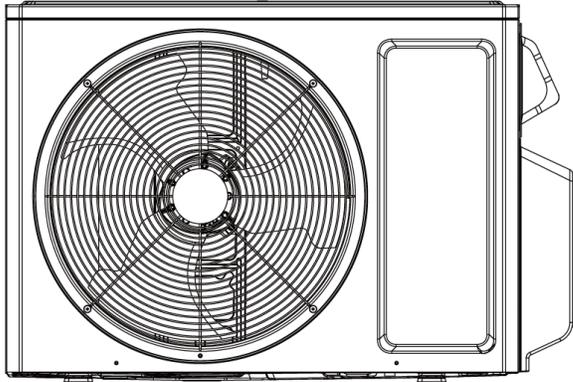
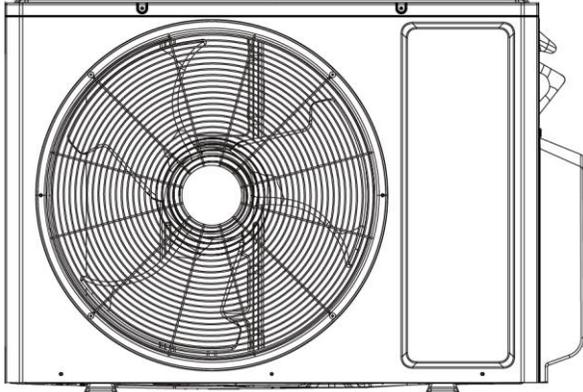
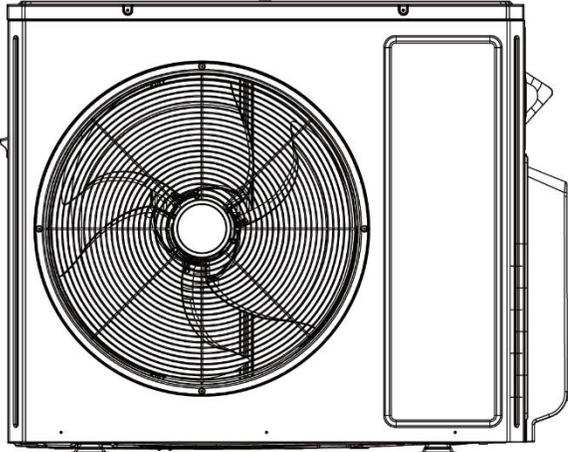
DO NOT use the unit in cool or dry mode for prolonged periods where humidity is higher than 90%.

DO NOT operate the unit for prolonged periods without refreshing ambient air. Open a door or window periodically to allow in fresh air.



Technical Information

Outdoor Unit

<p>WMMS-30CH-V2B(59)5</p>	
<p>WMMS-36CH-V2B(59)5</p>	
<p>WMMS-42CH-V2B(59)5 WMMS-48CH-V2B(59)5 WMMS-60CH-V2B(59)5</p>	



(59)5 ODU Specification Sheet

Model		WMMS-30CH-U2B(59)5	WMMS-36CH-U2B(59)5	WMMS-42CH-U2B(59)5	WMMS-48CH-U2B(59)5	WMMS-60CH-U2B(59)5	
Power supply	v / Hz / ph	208-230 / 60 / 1	208-230 / 60 / 1	208-230 / 60 / 1	208-230 / 60 / 1	208-230 / 60 / 1	
Cooling capacity	Btu/h	17,000 - 23,800	23,200 - 32,480	28,400- 39,760	34,000 - 47,600	36,000 - 50,400	
Heating capacity	Btu/h	18,000 - 25,200	24,000 - 33,600	30,000 - 42,000	36,000 - 50,400	40,000 - 56,000	
Cooling Power Input	W	1420	1860	2270	2830	3000	
Heating Power Input	W	1380	1800	2250	2960	3020	
Cooling Current Input	A	6.28	8.00	10.07	12.56	13.31	
Heating Current Input	A	6.12	7.83	9.98	13.13	13.40	
Rated Power Input	W	2300/2100	3200/3400	4600/5000	4600/5200	4600/5200	
Rated Current	A	10.0/9.0	14.2/15	20.41/21.74	20.41/22.61	20.41/22.61	
EER	(Btu/h)/W	12.00	12.49	12.49	12.00	12.00	
COP	(Btu/h)/W	13.03	13.34	13.34	12.16	13.25	
SEER		21.00(SEER) 21.00(SEER2)	21.00(SEER) 21.00(SEER2)	21.00(SEER) 21.00(SEER2)	21.00(SEER) 21.00(SEER2)	21.00(SEER) 21.00(SEER2)	
HSPF		10.00(HSPF) 10.00(HSPF2)	10.00(HSPF) 10.00(HSPF2)	10.00(HSPF) 10.00(HSPF2)	10.00(HSPF) 10.00(HSPF2)	10.00(HSPF) 10.00(HSPF2)	
Connectable IDU Capacity Btu/h Total-Ranges:							
Residential	Btu/h	12,000 - 30,000	12,000 - 36,000	28,000 - 48,000	34,000 - 54,000	40,000 - 60,000	
Commercial	Btu/h	12,000 - 24,000	12,000 - 30,000	28,000 - 42,000	34,000 - 48,000	40,000 - 54,000	
Outdoor Unit	Compressor Trademark	Zhuhai Landa Compressor Co., LTD.	Zhuhai Landa Compressor Co., LTD.	Zhuhai Landa Compressor Co.,LTD.	Zhuhai Landa Compressor Co, LTD	Zhuhai Landa Compressor Co, LTD	
	Compressor Model	QXF-A139zH170A	QXFS-B212zX070	QXFS-B238zX070	QXFS-D280zX070C	QXFS-D280zX070C	
	Compressor Refrigerant Oil Type	FW68DA or equivalent	FW68DA or equivalent	FW68DA or equivalent	FW68DA or equivalent	FW68DA or equivalent	
	Compressor Type	Inverter Rotary	Twin Rotary	Inverter Rotary	Twin Rotary	Twin Rotary	
	L.R.A	A	25	/	/	/	/
	Compressor Rated Load Amp (RLA)	A	9.95	12.1	14.25	18.2	18.4
	Compressor Power Input	W	1295	1887	2047	2294	2294
	Compressor Thermal Protector		KSD115OC HPC115/95U1	KSD115OC HPC115/95U1	KSD115OC HPC115/95U1	KSD115OC HPC115/95U1	KSD115OC HPC115/95U1
	Throttling Method		Electron expansion valve	Electron expansion valve	Electron expansion valve	Electron expansion valve	Electron expansion valve
	Cooling Operation Ambient Temp. Range	°F	-22~118	-22~118	-22~118	-22~118	-22~118
	Heating Operation Ambient Temp. Range	°F	-22~75.2	-22~75.2	-22~75.2	-22~75.2	-22~75.2
	Condenser Material		Aluminum Fin-copper Tube	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube	Aluminum Fin-copper Tube
	Condenser Pipe Diameter	mm	7.94	7.94	7.94	7.94	7.94
	Rows-Fin Gap (mm)	mm	2-1.4	2-1.4	2-1.4	3-1.6	3-1.6
	Coil Length (l) X height (H) X coil width (L)	mm	834x528x38.1	851x616x38.1	1066x792x38.1	1066x792x57.1	1066x792x57.1
	Fan Motor Speed (rpm)	rpm	cooling:900 heating:900	cooling:850 heating:850	cooling:860 heating:860	cooling:860 heating:860	cooling:860 heating:860
	Output of Fan Motor	W	30	60	130	130	130
	Fan Motor RLA	A	/	/	/	/	/
	Fan Motor Capacitor	µF	/	/	/	/	/
	Air Flow Volume of ODU	CFM	1354	2236	3413	3413	3413
Fan Type-Piece		Axial-flow	Axial-flow	Axial-flow	Axial-flow	Axial-flow	
Fan Diameter	mm	420-131.1	520-154	550-205	550-205	550-205	
Defrosting Method		Automatic Defrosting	Automatic Defrosting	Automatic Defrosting	Automatic Defrosting	Automatic Defrosting	
Climate Type		T1	T1	T1	T1	T1	



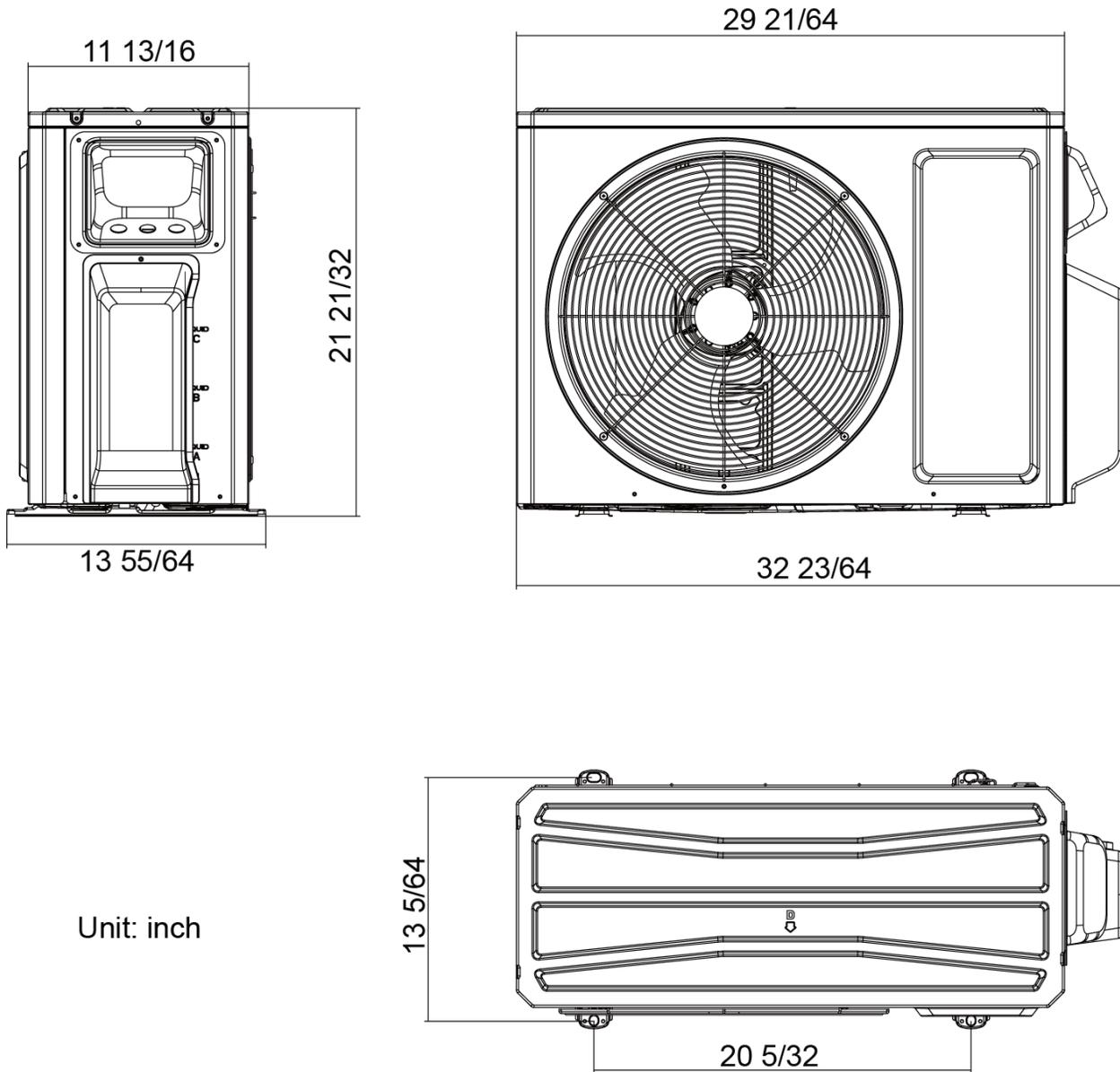


Isolation		I	I	I	I	I
Moisture Protection		IPX4	IPX4	IPX4	IPX4	IPX4
Permissible Excessive Operating Pressure for the Discharge Side	PSIG	550	550	550	550	550
Permissible Excessive Operating Pressure for the Suction Side	PSIG	240	240	240	240	240
Cross-sectional Area of Power Cable Conductor	sq in	0.0032 AWG14	0.0051(AWG12)	0.008215 (AWG10)	0.008215(AWG10)	0.008215(AWG10)
Recommended Power Cable(Core)	N	3	3	3	3	3
Outer Diameter of Liquid Pipe1 Liquid Pipe2	inch	1/4" 1/4"	1/4" 1/4" 1/4"	1/4" 1/4" 1/4" 1/4"	1/4" 1/4" 1/4" 1/4"	1/4" 1/4" 1/4" 1/4" 1/4"
Outer Diameter of Gas Pipe1 Gas Pipe2	inch	3/8" 3/8"	3/8" 3/8" 3/8"	3/8" 3/8" 3/8" 3/8"	3/8" 3/8" 3/8" 3/8"	3/8" 3/8" 3/8" 3/8" 3/8"
Connection Pipe Max. Height Distance (indoor and outdoor and outdoor up)	Ft.	49.2	49.212	82.0	82.0	82.0
Max. equivalent connection pipe length (outdoor to last indoor)	Ft.	65.6	196.8	262.5	262.5	328.1
Model		WMMS-30CH-U2B(59)5	WMMS-36CH-U2B(59)5	WMMS-42CH-U2B(59)5	WMMS-48CH-U2B(59)5	WMMS-60CH-U2B(59)5
Dimension (WXDXH)	inch	32 23/64 x 13 55/64 x 21 21/32	37 61/64 x 15 53/64 x 25 63/64	40 5/32 x 16 13/16 x 32 33/64	40 5/32 x 16 13/16 x 32 33/64	40 5/32 x 16 13/16 x 32 33/64
Dimension of Package (LXWXH)	inch	34 7/32 x 15 35/64 x 23 25/64	40 33/64 x 17 53/64 x 28 5/32	42 29/32 x 19 29/64 x 34 1/4	42 29/32 x 19 29/64 x 34 1/4	42 29/32 x 19 29/64 x 34 1/4
Net Weight	lb	77.2	114.7	152.1	172.0	174.2
Gross Weight	lb	82.7	124.6	167.6	187.4	189.6
Liquid Pipe Valve Sizes	in.	2 x 1/4"	3 x 1/4"	3 x 1/4"	4 x 1/4"	5 x 1/4"
Gas Pipe Valve Sizes	in.	2 x 3/8"	3 x 3/8"	3 x 3/8"	4 x 3/8"	5 x 3/8"
Connection Pipe Connection Method		Flare Connection	Flare Connection	Flare Connection	Flare Connection	Flare Connection
R410A Refrigerant Charge	oz	45.9	84.7	105.8	130.5	134.0
Not Additional Gas Connection Pipe Length	ft	32.8	131.2	131.2	131.2	164.0
Connection Pipe Gas Additional Charge	oz/ft.	0.2	0.2	0.2	0.2	0.2
Connection Pipe Max. Height Distance(indoor and indoor)	ft	49.2	49.212	82.0	82.0	82.0
Max. equivalent connection pipe length (outdoor to last indoor)	ft	131.2	65.6	82.0	82.0	82.0

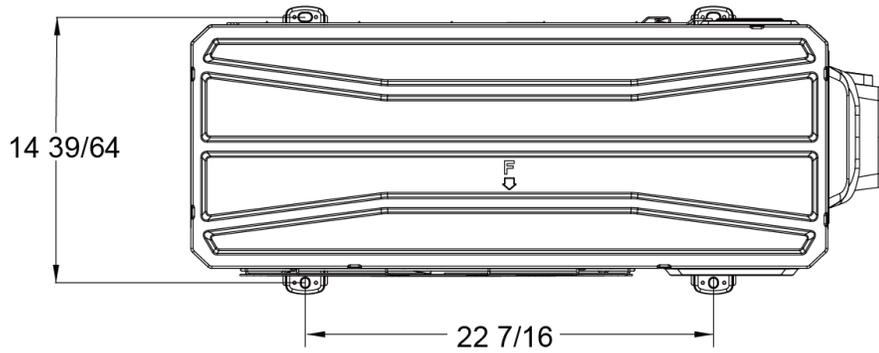
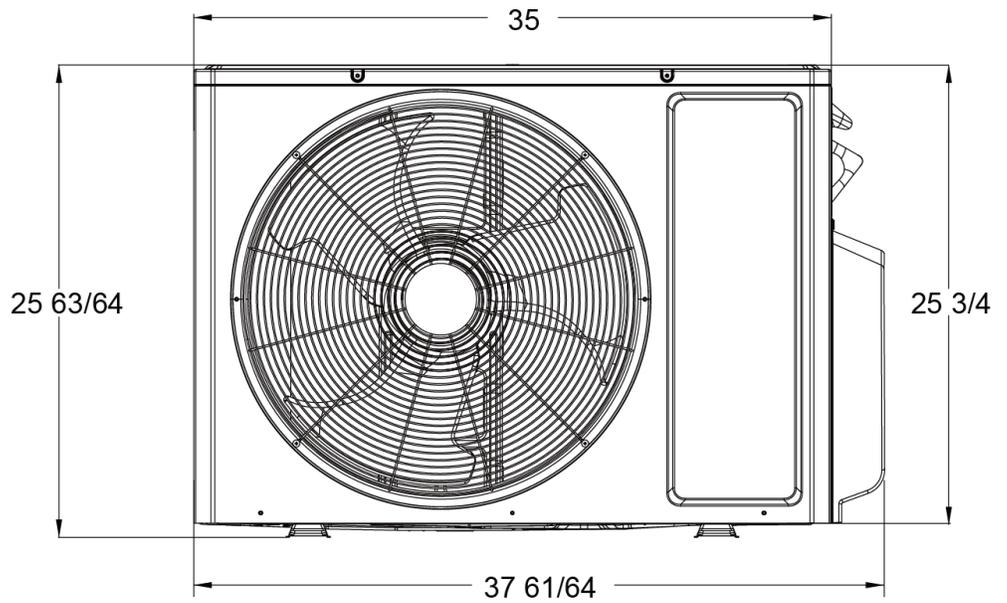
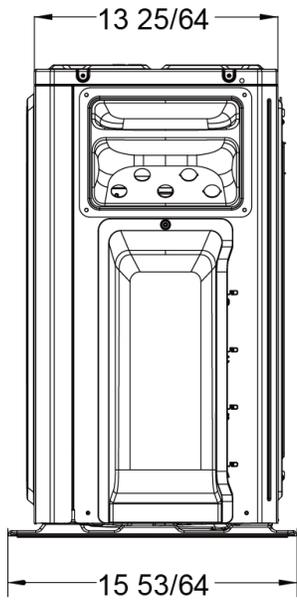


Outline Dimension Diagram

WMMS-30CH-V2B(59)5

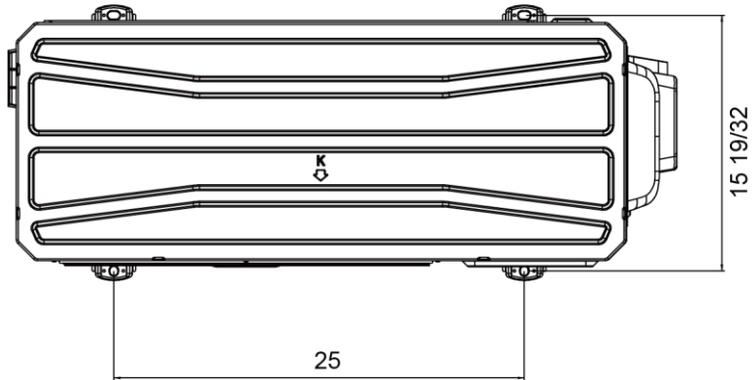
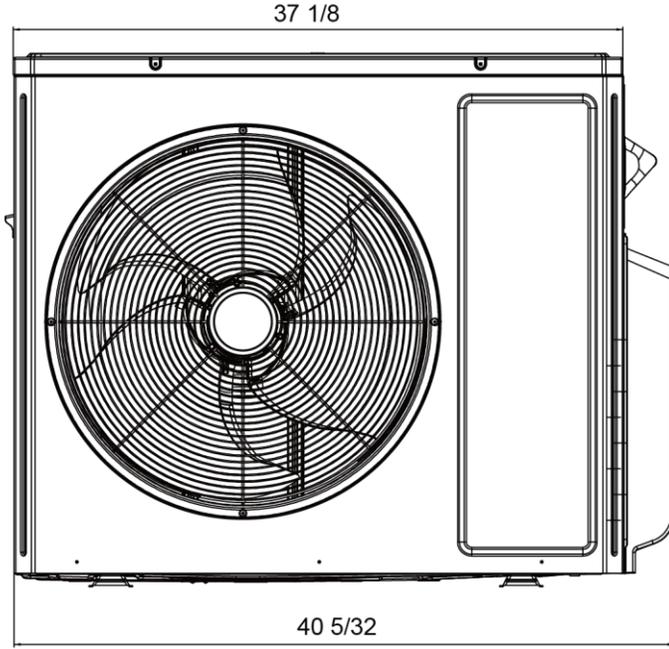
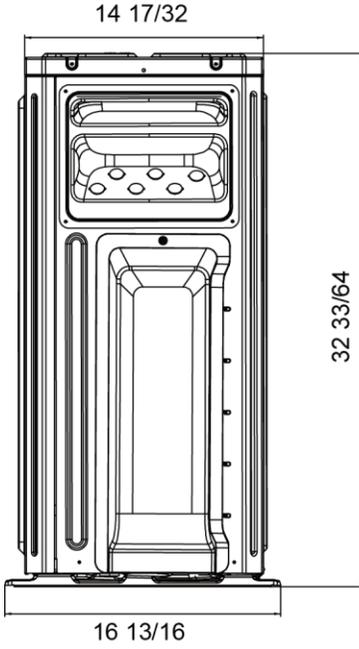


WMMS-36CH-V2B(59)5



Unit: inch

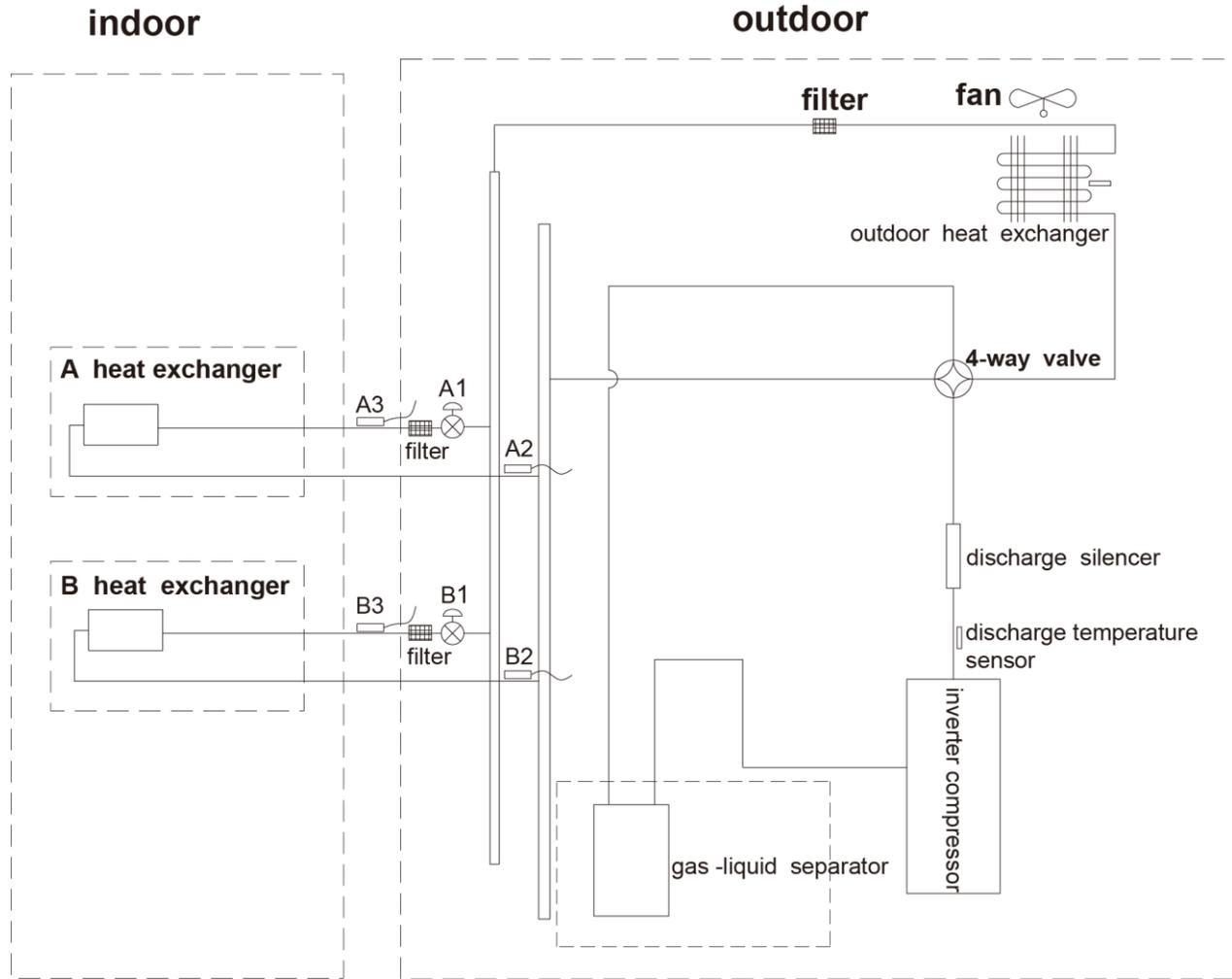
WMMS-42CH-V2B(59)5
 WMMS-48CH-V2B(59)5
 WMMS-60CH-V2B(59)5



Unit: inch

Refrigerant System Diagram

WMMS-30CH-V2B(59)5

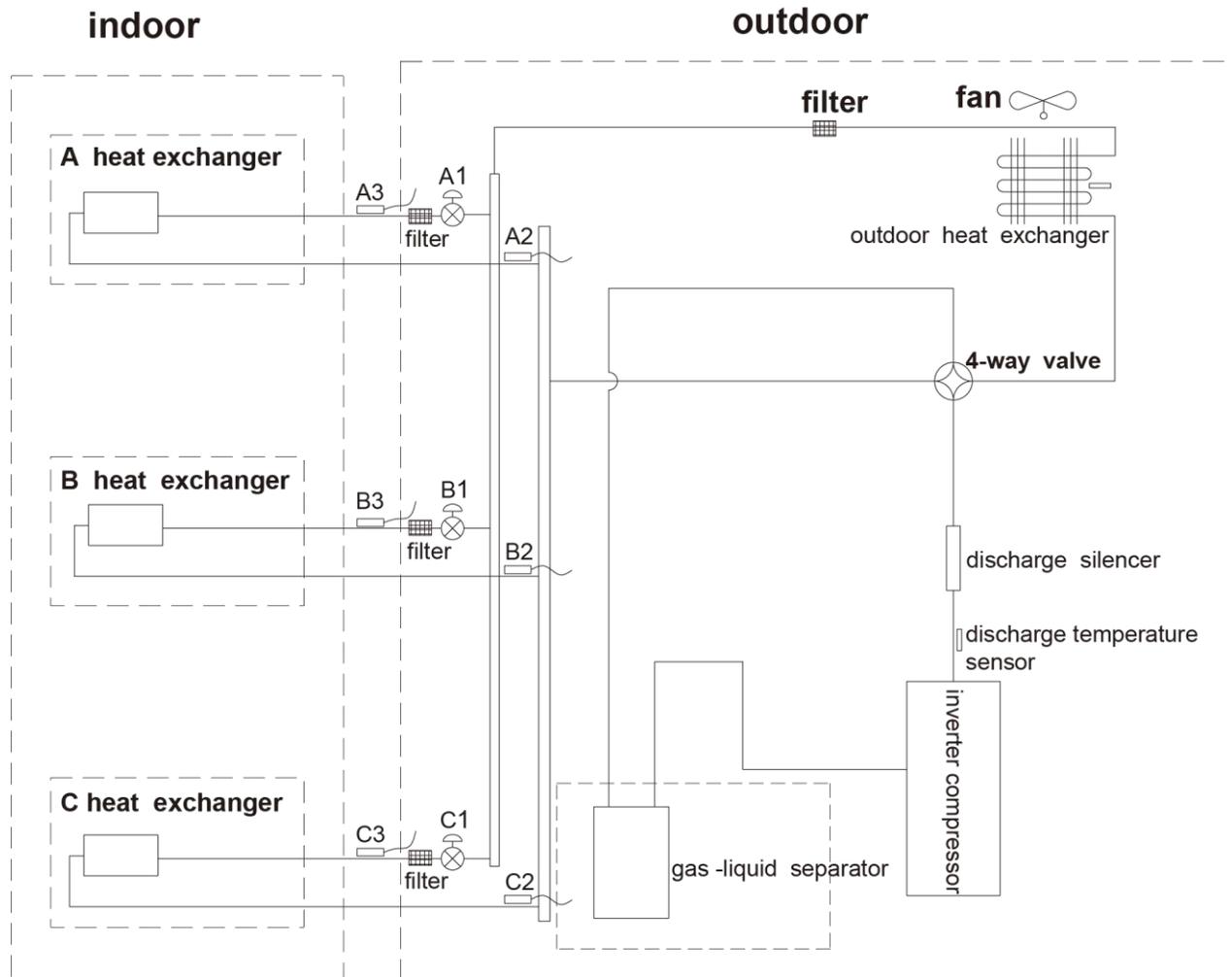


A1: A-unit electronic expansion valve
 B1: B-unit electronic expansion valve

A2: A-unit gas pipe temperature sensor
 B2: B-unit gas pipe temperature sensor

A3: A-unit liquid pipe temperature sensor
 B3: B-unit liquid pipe temperature sensor

WMMS-36CH-V2B(59)5

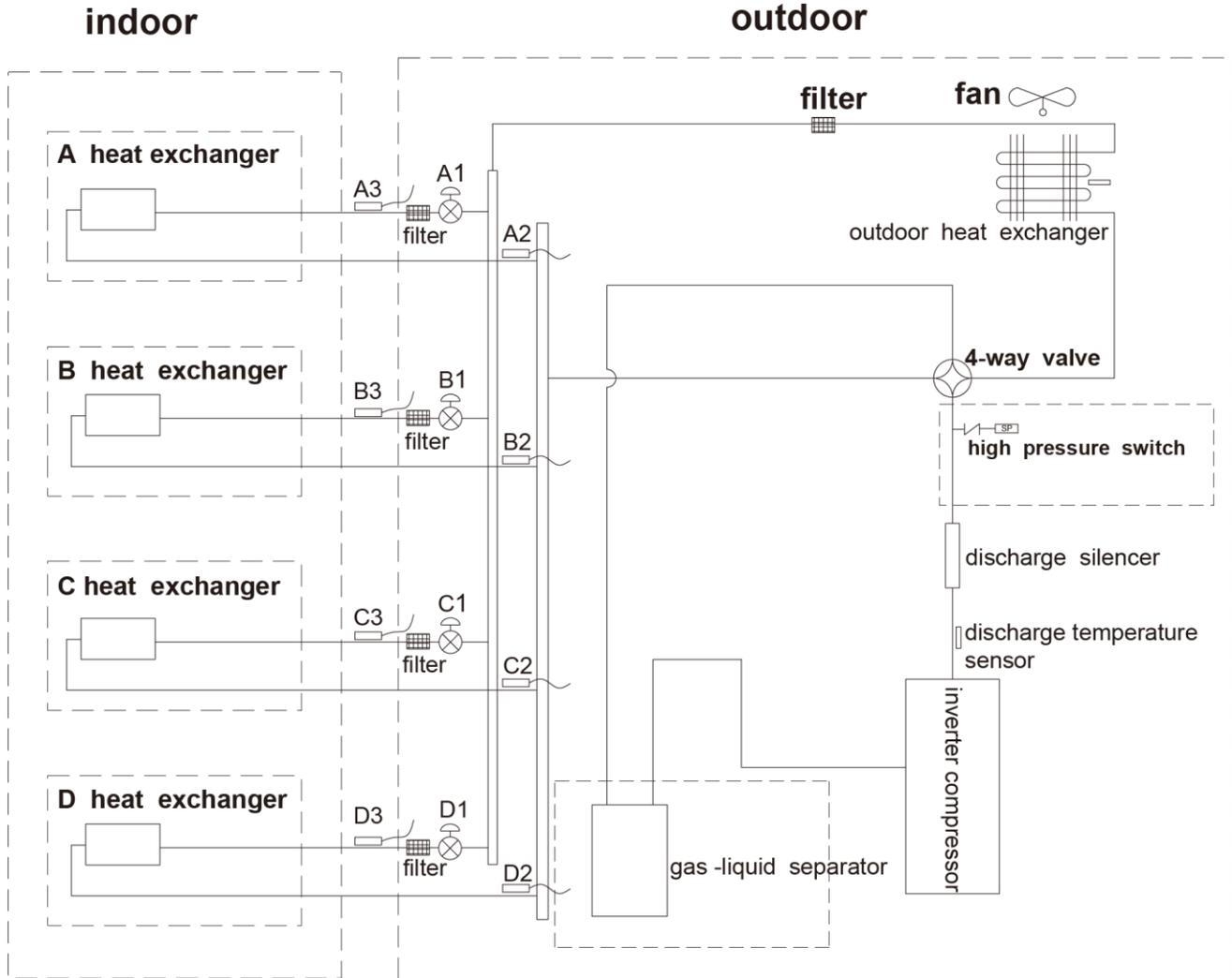


A1: A-unit electronic expansion valve
 B1: B-unit electronic expansion valve
 C1: C-unit electronic expansion valve

A2: A-unit gas pipe temperature sensor
 B2: B-unit gas pipe temperature sensor
 C2: C-unit gas pipe temperature sensor

A3: A-unit liquid pipe temperature sensor
 B3: B-unit liquid pipe temperature sensor
 C3: C-unit liquid pipe temperature sensor

WMMS-42CH-V2B(59)5
WMMS-48CH-V2B(59)5

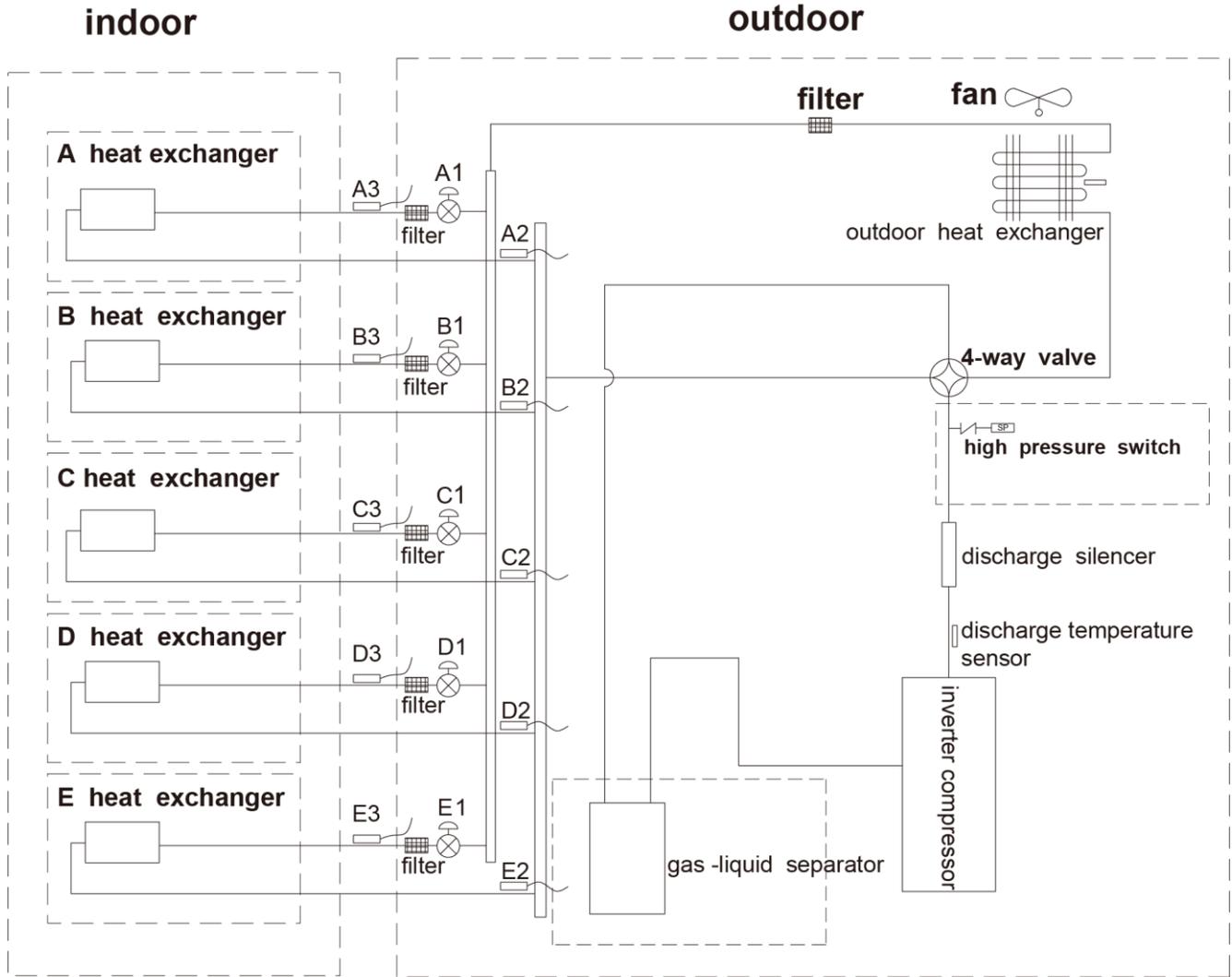


A1: A-unit electronic expansion valve
B1: B-unit electronic expansion valve
C1: C-unit electronic expansion valve
D1: D-unit electronic expansion valve

A2: A-unit gas pipe temperature sensor
B2: B-unit gas pipe temperature sensor
C2: C-unit gas pipe temperature sensor
D2: D-unit gas pipe temperature sensor

A3: A-unit liquid pipe temperature sensor
B3: B-unit liquid pipe temperature sensor
C3: C-unit liquid pipe temperature sensor
D3: D-unit liquid pipe temperature sensor

WMMS-60CH-V2B(59)5



A1: A-unit electronic expansion valve
 B1: B-unit electronic expansion valve
 C1: C-unit electronic expansion valve
 D1: D-unit electronic expansion valve
 E1: E-unit electronic expansion valve

A2: A-unit gas pipe temperature sensor
 B2: B-unit gas pipe temperature sensor
 C2: C-unit gas pipe temperature sensor
 D2: D-unit gas pipe temperature sensor
 E2: E-unit gas pipe temperature sensor

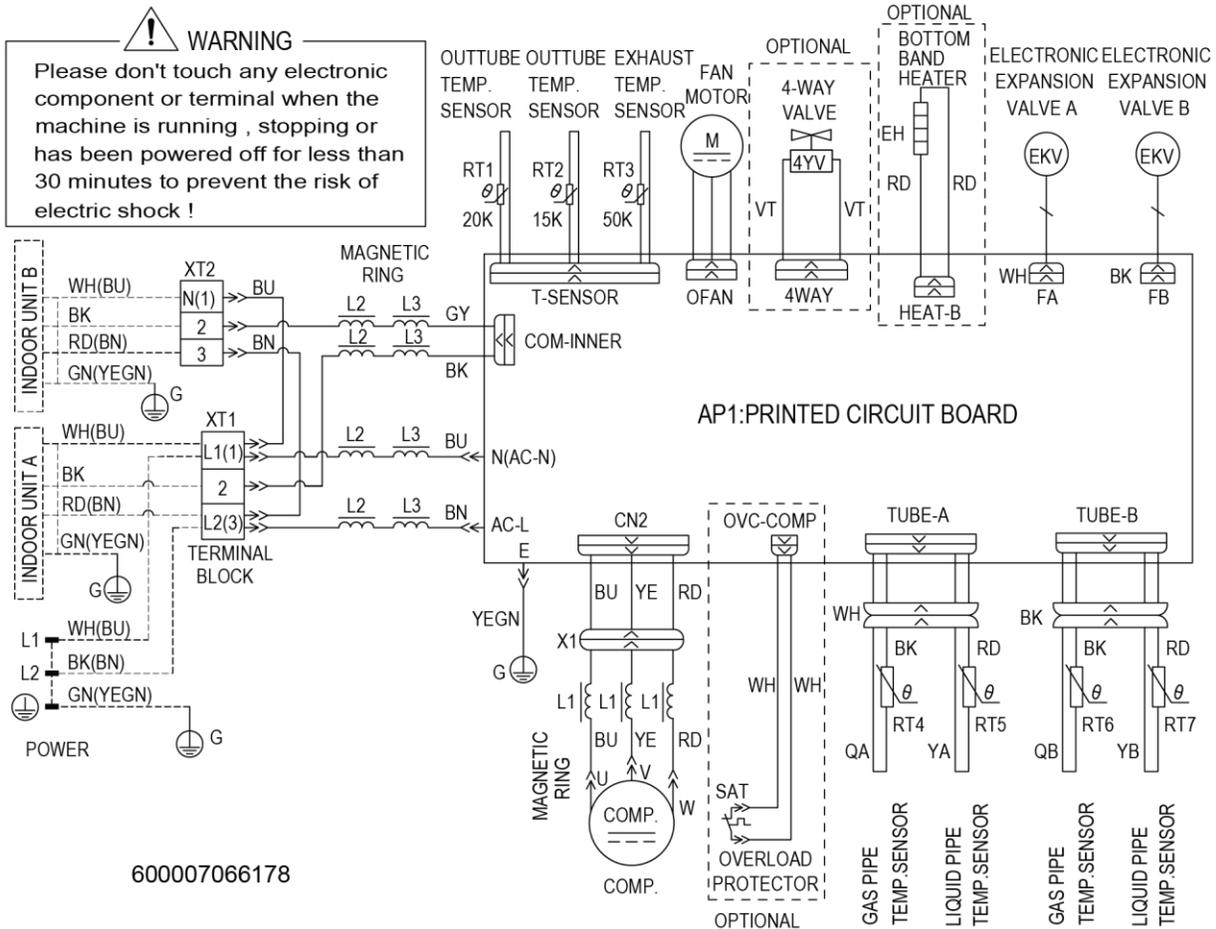
A3: A-unit liquid pipe temperature sensor
 B3: B-unit liquid pipe temperature sensor
 C3: C-unit liquid pipe temperature sensor
 D3: D-unit liquid pipe temperature sensor
 E3: E-unit liquid pipe temperature sensor

Electrical Components

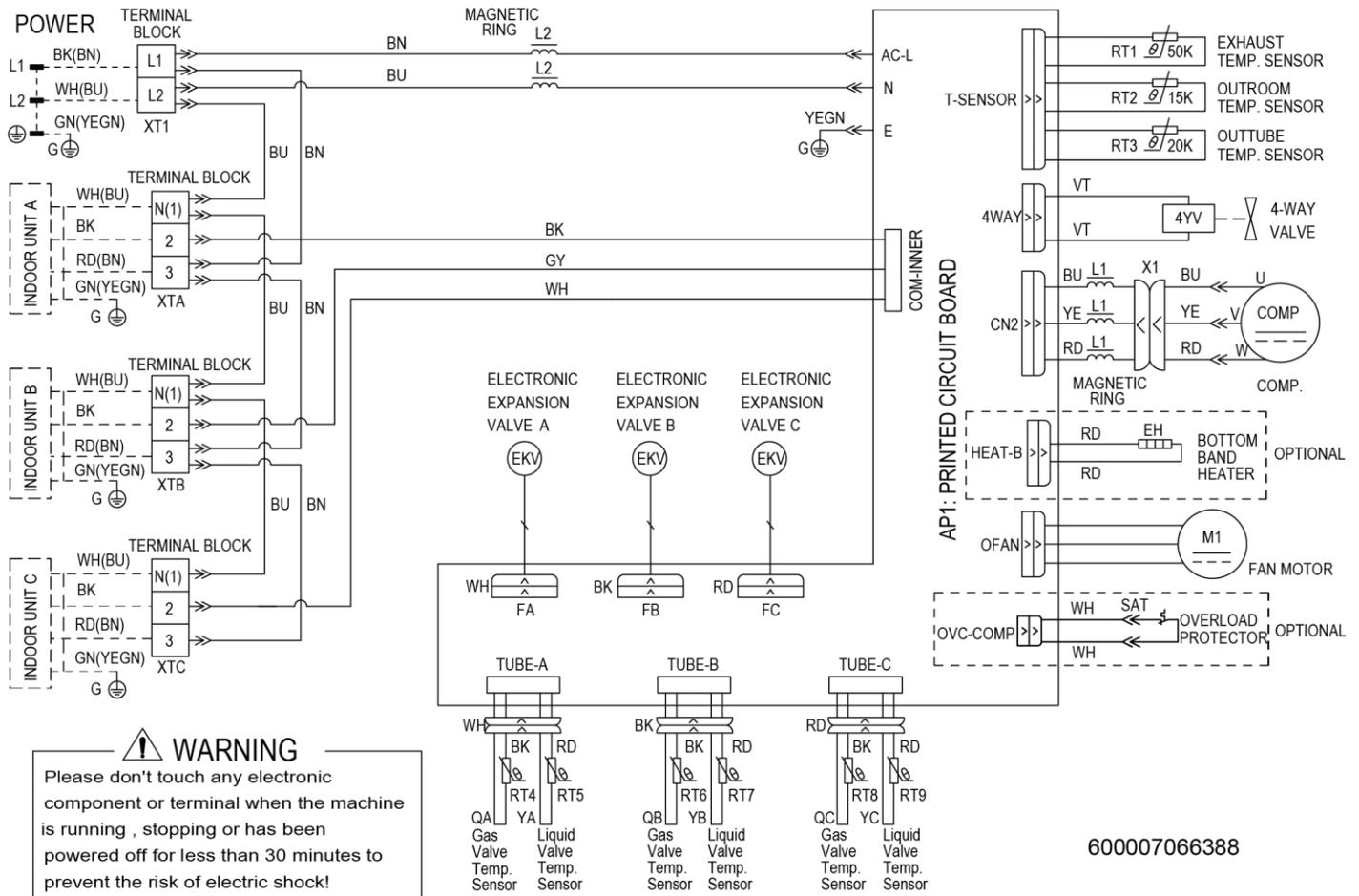
Symbol	Symbol Color	Symbol	Symbol Color	Symbol	Symbol Color
WH	White	GN	Green	COMP	Compressor
YE	Yellow	BN	Brown		Grounding wire
RD	Red	BU	Blue	VT	Violet
YEGN	Yellow/Green	BK	Black	OG	Orange

Outdoor Unit

WMMS-30CH-V2B(59)5



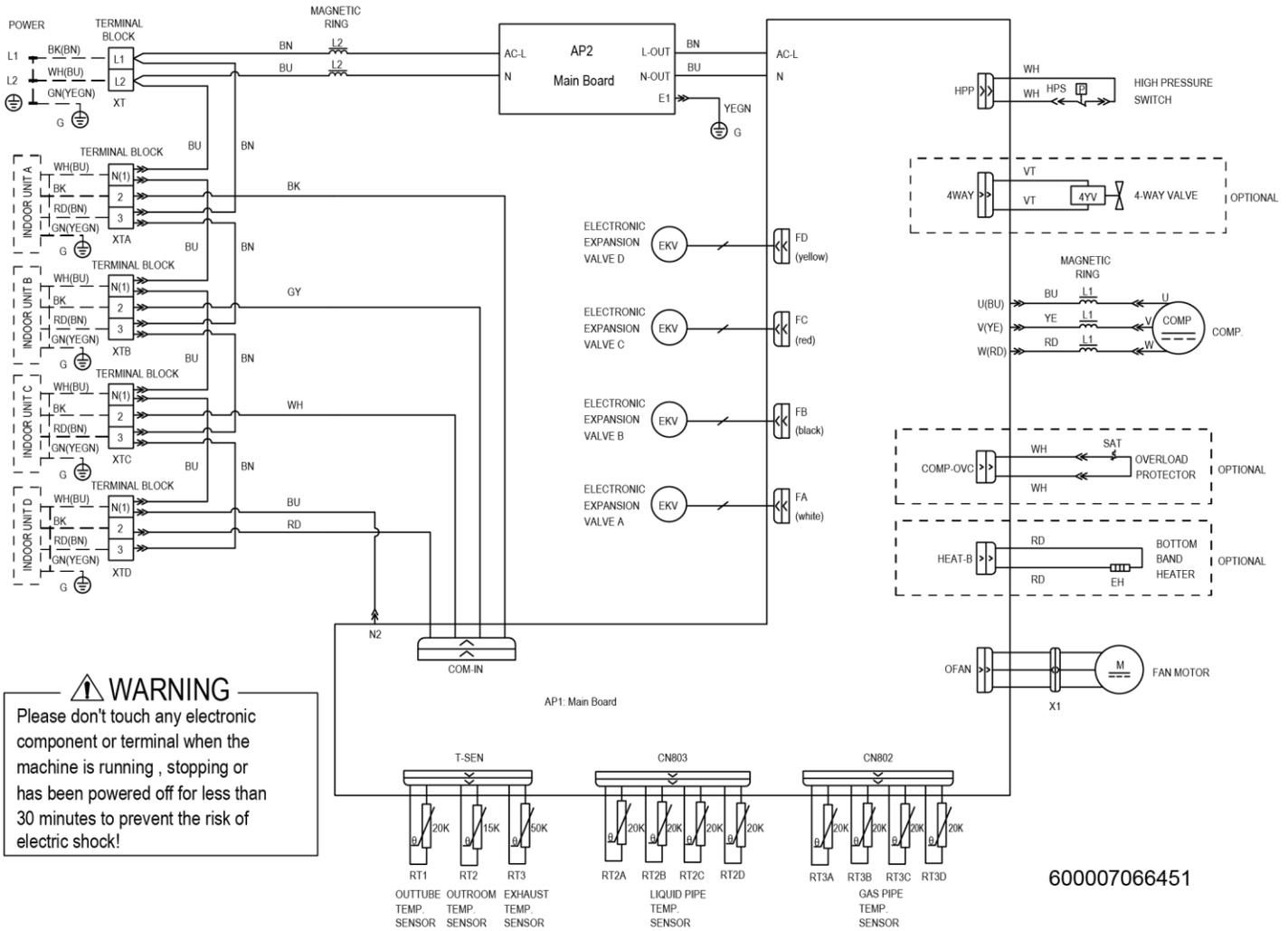
WMMS-36CH-V2B(59)5



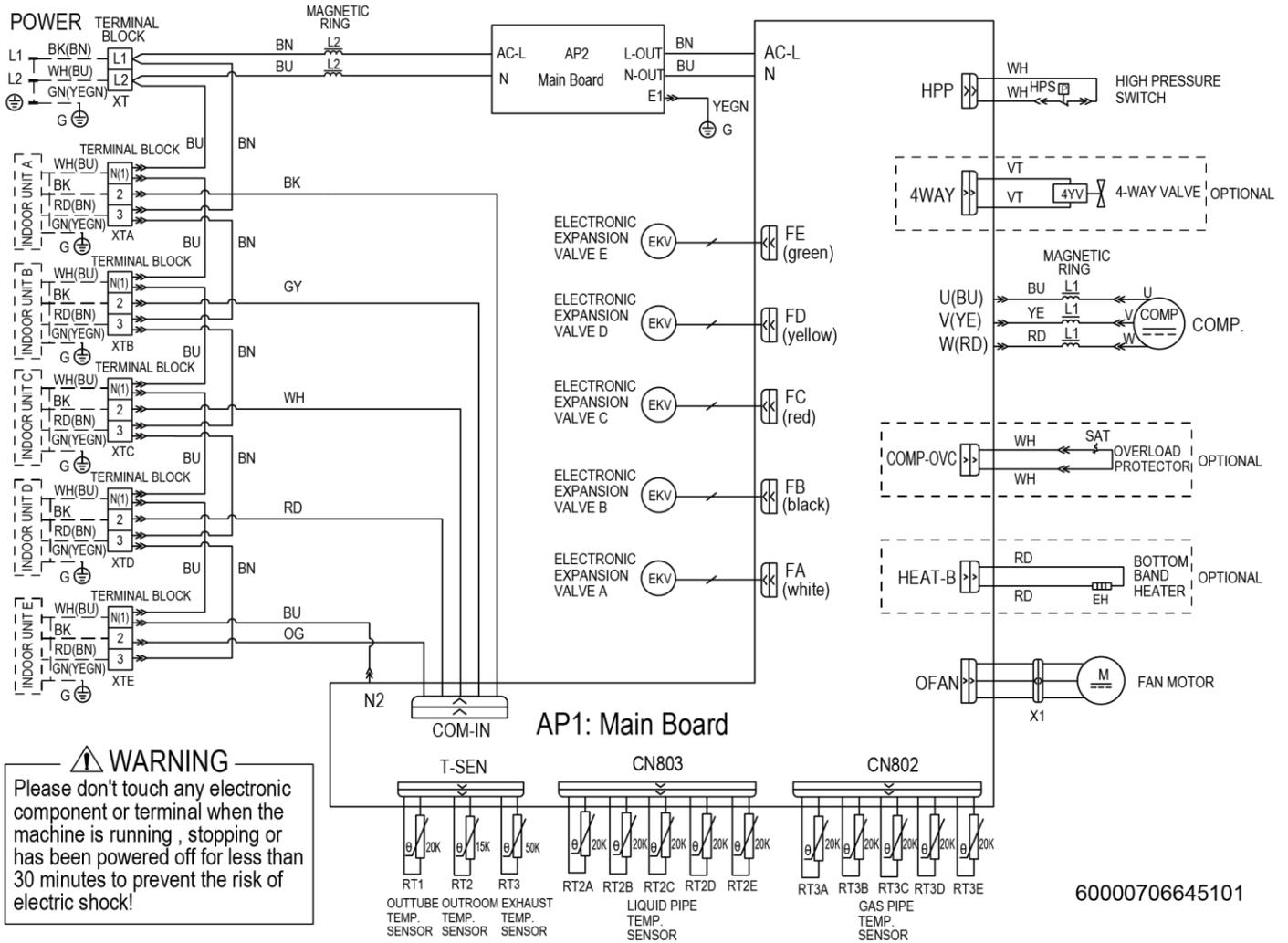
WARNING
 Please don't touch any electronic component or terminal when the machine is running, stopping or has been powered off for less than 30 minutes to prevent the risk of electric shock!

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WMMS-42CH-V2B(59)5
WMMS-48CH-V2B(59)5



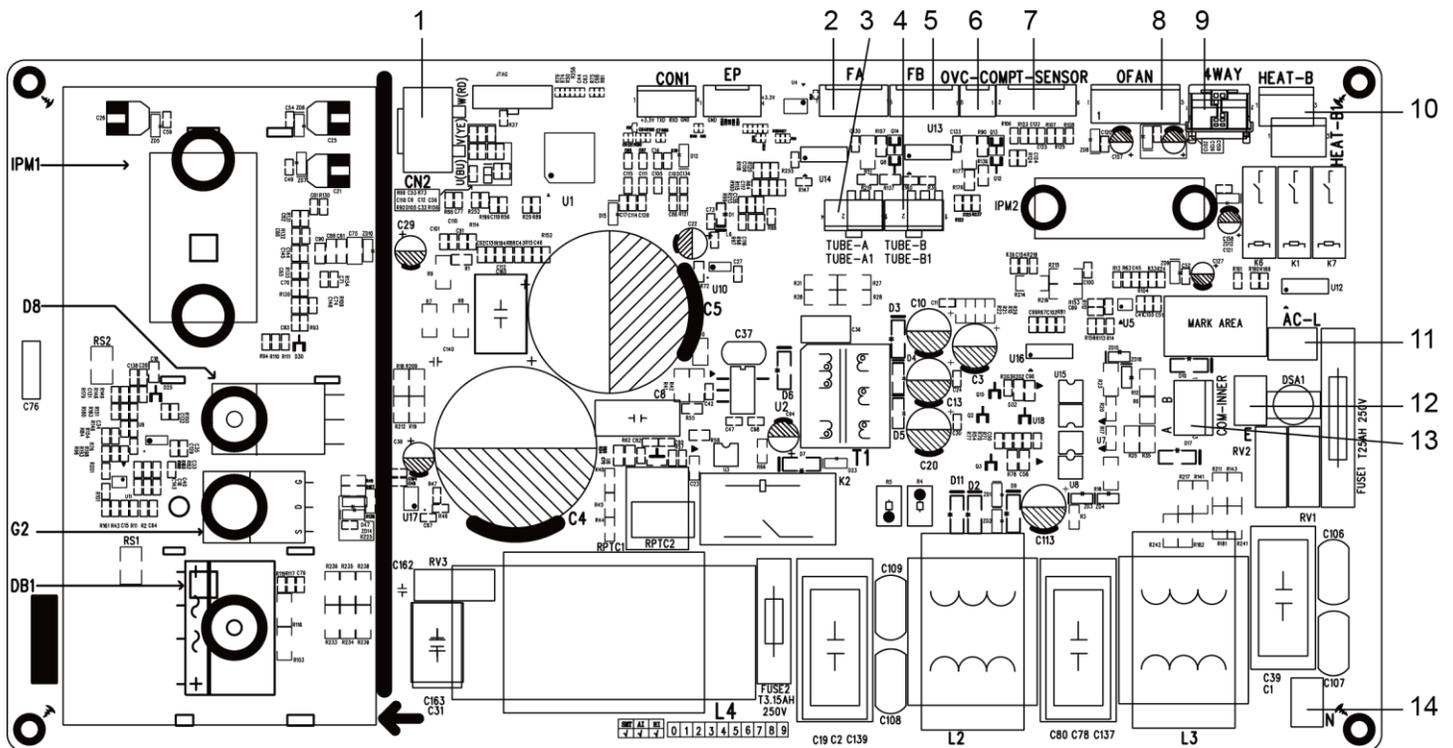
WMMS-60CH-V2B(59)5



These wiring diagrams are subject to change without notice; please refer to the one supplied with the unit.

PCB Printed Board Diagrams

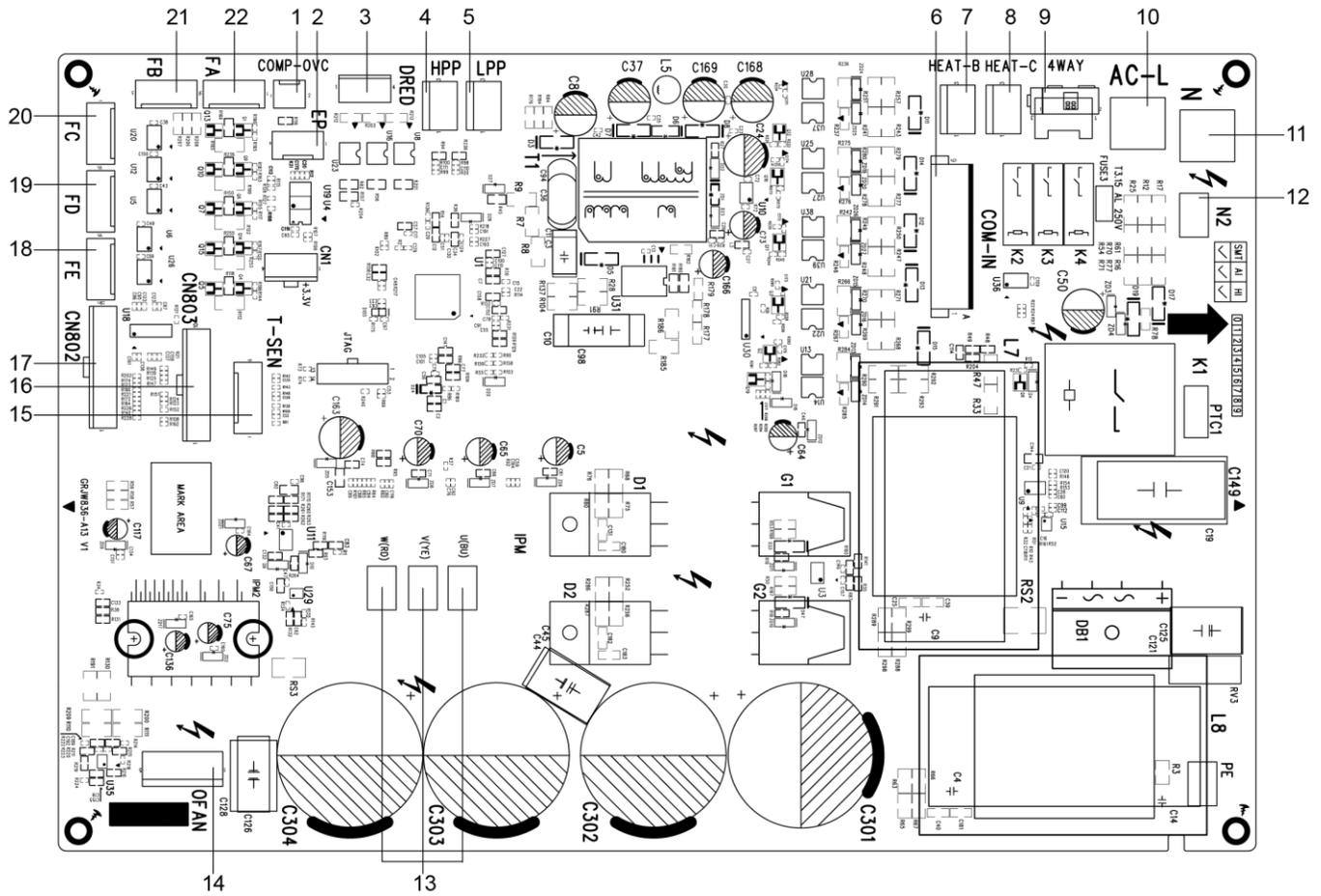
WMMS-30CH-V2B(59)5



No.	Name
1	Terminal of compressor
2	Terminal of electronic expansion valve A
3	Terminal of gas-liquid valve temperature Sensor A
4	Terminal of gas-liquid valve temperature Sensor B
5	Terminal of electronic expansion valve B
6	Overload protection terminal of compressor
7	Terminal of temperature Sensor

No.	Name
8	Terminal of outdoor fan
9	Terminal of 4-way valve
10	Electric heating terminal of chassis
11	Terminal of live wire
12	Terminal of grounding wire
13	Terminal of communication wire
14	Terminal of neutral wire

WMMS-42CH-V2B(59)5 WMMS-48CH-V2B(59)5 WMMS-60CH-V2B(59)5



No.	Name	No.	Name
1	Overload protection terminal of compressor	12	Terminal of communication neutral wire
2	Terminal of E disk	13	Terminal of compressor
3	Terminal of DRED	14	Terminal of outdoor fan
4	Terminal of high pressure protection	15	Terminal of temperature Sensor
5	Terminal of low pressure protection	16	Terminal of liquid valve temperature Sensor
6	Terminal of communication wire	17	Terminal of gas valve temperature Sensor
7	Electric heating terminal of chassis	18	Terminal of electronic expansion valve E
8	Electric heating terminal of compressor	19	Terminal of electronic expansion valve D
9	Terminal of 4-way valve	20	Terminal of electronic expansion valve C
10	Terminal of live wire	21	Terminal of electronic expansion valve B
11	Terminal of neutral wire	22	Terminal of electronic expansion valve A

Functions and Controls

1. Basic functions of the system

Cooling Mode

1.1 Cooling conditions and process:

If the compressor is in stop status and start the unit for cooling operation, when one of the indoor units reaches the cooling operation condition, the unit start cooling operation; in this case, the electronic expansion valve, the outdoor fan and the compressor start operation.

1.2 Stop in cooling operation

1.2.1 Compressor stops

The compressor stops immediately, the outdoor fan stops after 1min.

1.2.2 Some of the indoor units reach the stop condition (the compressor does not stop). The compressor operates immediately according to the required frequency. For the indoor unit with no requirement, the corresponding electronic expansion valve is closed to OP.

1.3 Cooling mode transfers to heating mode

When the unit transfers to heating mode, the 4-way valve is energized after the compressor stops for 2min. The other disposals are the same as stopping in cooling mode.

1.4 4-way valve: in this mode, the 4-way valve is closed.

1.5 Outdoor fan control in cooling mode

The outdoor fan starts before 5s of the starting of compressor. The outdoor fan will run in high speed for 3min after starting and then it will run in set speed. The fan shall run at every speed for at least 80s. (When the quantity of running indoor unit is changed, the unit will enter the control described in 1.3.5.1 and 1.3.5.2)

When the compressor stops, the outdoor fan runs at present speed and stops after 1min.

Dehumidify Mode

2.1 The dry conditions and process are the same as those in cooling mode

2.2 The status of 4-way valve: closed

2.3 The temperature setting range: 60.8 ~ 86°F (16 ~ 30°C)

2.4 Protection function: the same as those in cooling mode

2.5 In dry mode, the maximum value A of the capacity requirement percentage of single unit is 90% of that in cooling mode. The open condition of the electronic expansion valve, outdoor fan and compressor is the same as those in cooling mode.

Heating Mode (Only for heat pump models)

3.1 Heating conditions and process:

When one of the indoor units reaches the heating operation condition, the unit starts heating operation.

3.2 Stop in heating operation:

3.2.1 When all the indoor units reach the stop condition, the compressor stops and the outdoor fan stops after 1min

3.2.2 Some of the indoor units reach the stop condition

The compressor reduces the frequency immediately and operates according to the required frequency.

3.2.3 Heating mode transfers to cooling mode (dry mode), fan mode

- a. The compressor stops.
- b. The power of 4-way valve is cut off after 2min.
- c. The outdoor fan stops after 1 min.
- d. The status of 4-way valve: energized.

3.3 Outdoor fan control in heating mode

The outdoor fan starts before 5s of the starting of compressor and then it will run in high speed for 40s.

The fan shall run at every speed for at least 80s.

When the compressor stops, the outdoor fan stops after 1min.

3.4 Defrosting function

When the defrosting condition is met, the compressor will stop

The electronic expansion valve of all indoor units open

The outdoor fan stops 40s after the of the stop of compressor

Meanwhile, the 4-way valve reverses the direction

After the 4-way valve reverses the direction, the compressor will start, then begin to calculate the time required for defrosting, the frequency of the compressor will increase to reach the needed defrosting frequency.

3.5 Oil-returned control in heating mode

3.5.1 Oil-returned condition

The whole unit is operating in low frequency for a long time.

3.5.2 Oil-returned process in heating mode

The indoor unit displays "H1"

3.5.3 Oil-returned finished condition in heating mode.

The duration reaches 5min

Fan Mode

4.1 The compressor, the outdoor fan and the 4-way valve are closed; temperature setting range is 16~30OC.

2. Protection Functions

2.1 Mode Conflict Protection of indoor unit

When the setting mode is different of different indoor unit, the unit runs in below status:

- a. Check to see if the mode of the first operating indoor unit is set to heating or cooling. Check the mode of the other indoor units to see if there is a conflict. Cooling mode (or dehumidify mode) is in conflict with heating mode.
- b. Fan mode conflicts with heating mode, and the heating mode is the basic mode. No matter which indoor unit operates first, the unit will run in heating mode.

2.2 Overload protection function

When the tube temperature is measured as a low, the compressor raises the operation speed; when the tube temperature is a high, the compressor speed is restricted or slows down the operation speed; when the tube temperature is too high, the compressor protection stops running.

If the discharge temperature protection is triggered 6 times, the compressor will shut down and will not resume running. The compressor will resume running after shutting off power to the unit, and then turning the power back on. If the compressor can continuously run for longer than 7min, the protection time record will be cleared.

2.3 Discharge Protection Function

When the discharge temperature is a low, the compressor raises the operation speed; when the discharge temperature is a high, the compressor speed is restricted or slows down the operation speed; when the discharge temperature is too high, the compressor protection prevents the compressor from running.

If the discharge temperature protection is triggered 6 times, the compressor will shut down and will not resume running. The compressor will resume running after shutting off power to the unit, and then turning the power back on. If the compressor can continuously run for longer than 7min, the protection time record will be cleared.

2.4 Communication malfunction

Detection of the quantity of installed indoor units:

After 3 min of energizing, if the outdoor unit does not receive any communication data of each indoor unit, the outdoor unit will decide that indoor unit is not installed and will treat it as it is not installed. If the outdoor unit receives the communication data from that indoor unit later, the outdoor unit will treat that unit as it is installed.

2.5 Overcurrent Protection

Overcurrent protection will be triggers under the following conditions

- a. Overcurrent protection of complete unit
- b. phase wire current protection
- c. compressor phase current protection

2.6 Compressor high-pressure protection

2.6.1 When the high-pressure switch is detected as cut off for 3s continuously, the compressor will enter high-pressure protection and stop running when it reaches a set temperature. Meanwhile, the outdoor unit will send the signal of "high-pressure protection" to the indoor units.

2.6.2 High-pressure protection is triggered when the high-pressure switch is detected closed for 6s continuously. The compressor can only resume operation after the power to the unit is shut down, and then turned back on again.

2.7 Compressor overload protection

If the compressor overload switch is detected as having movement, the indoor unit will display the corresponding malfunction as it stops when the indoor temperature reaching set temperature. When the compressor stops for more than 3min and the compressor overload switch is reset, the unit will resume operation status automatically. If the protection appears for more than 6 times (if the compressor running time is longer than 30min, the protection times record will be cleared), the unit cannot resume operation status automatically, but can resume running only after cutting off the power and then putting through the power.

2.8 Compressor Phase-lacking Protection

When the compressor starts, if one of the three phases is detected open, the compressor will enter phase-loss protection. The malfunction will clear after 1min. The unit will restart and then detect if there is still has phase-loss issue. If the phase-loss protection is detected 6 times in a row, the compressor will shut down and will not resume running. The compressor will resume running after shutting off power to the unit, and then turning the power back on. If the compressor can continuously run for longer than 7min, the protection time record will be cleared.

2.9 IPM Protection

2.9.1 When the IPM module protection fault is detected, the unit will stop when the indoor temperature reaches the set temperature. The PFC is closed, and the display will indicate the IPM protection malfunction. After the compressor stops for 3 min, the unit will attempt to resume operating status automatically. If the IPM protection is detected for more than 6 times in a row the compressor will shut down and will not resume running. The compressor will resume running after shutting off power to the unit, and then turning the power back on. If the compressor can continuously run for longer than 7min, the protection time record will be cleared.

2.9.2 IPM module overheating protection

2.9.2.1 When Temperature of the IPM greater than or equal to 185 °F, the unit is prohibited from increasing the compressor speed.

2.9.2.2 When Temperature of the IPM greater than or equal to 194 °F, the operation speed of compressor will slow down by 15% every 90s according to the present capacity requirement of the system.

It will stay at that setting for 90s after slowing down the speed.

After slowing down the compressor speed, if Temperature of the IPM greater than or equal to 194 °F, the unit will continue to reduce the compressor speed by 15% every 90s until it reaches the compressor's minimum speed.

If at 185 °F or lower, the Temperature of the IPM is lower than 194 °F, the unit will run at this speed. When Temperature of the IPM \leq 185 °F, the unit will run at the speed according to the capacity requirement.

2.9.2.3 When Temperature of the IPM greater than or equal to 194 °F, the compressor will stop. After the compressor stops for 3min, if Temperature of the IPM less than 185 °F, the compressor and the outdoor fan will resume operation.

Notes for Installation and Maintenance

Safety Precautions: Important!

Please read the safety precautions carefully before installation and maintenance.

The following contents are very important for installation and maintenance.

Please follow the instructions below.

- The installation or maintenance must be done according to instructions.
- Comply with all national electrical codes and local electrical codes.
- Pay attention to the warnings and precautions in this manual.
- All installation and maintenance should be performed by a qualified HVAC Technician.
- All electric work must be performed by a licensed contractor according to local regulations and the instructions given in this manual.
- Be cautious during installation and maintenance. Do not allow incorrect operation or installation to prevent electric shock and other potential accidents.



WARNINGS

Electrical Safety Precautions:

1. Turn off the power supply to the air conditioner before inspection and maintenance.
2. The air condition must be on a specialized circuit and not share the same circuit with any other appliances.
3. The air conditioner should be installed in suitable location and ensure the power connection is accessible.
4. Make sure the wire to each wiring terminal is firmly connected during installation and maintenance.
5. The unit must be adequately grounded. The grounding wire cannot be used for other purposes.
6. Must use protective accessories such as protective boards, cable-cross loop and wire clip.
7. The live wire, neutral wire and grounding wire of power supply must be corresponding to the live wire, neutral wire and grounding wire of the air conditioner.
8. The power cord and power connection wires cannot be compressed by any objects.
9. If power cord or connection wire is broken or damaged, it must be replaced by a qualified technician.
10. If the power cord or connection wire is not long enough, replace with a power cord or connection wire that is the correct length from the manufacture or distributor. Do not splice or lengthen the wiring.
11. The air conditioner must be installed with an appropriately sized circuit breaker in the circuit. The circuit breaker should be all-pole parting, and the contact parting distance should be greater than 3mm.
12. Make sure all wires and pipes are connected properly, and the valves are opened before energizing.
13. Check to see if there is electric leakage on the unit body. If yes, eliminate the electric leakage before running the system.
14. If the fuse burns out, replace the fuse with a new one of the same specification. DO NOT replace it with a cooper wire or conducting wire.
15. If the unit is to be installed in a humid location, a circuit breaker must be installed.

Installation Safety Precautions:

1. Select the installation location according to the requirements listed in this manual.(See the requirements in installation section)
2. Handle unit transportation with care; the unit should not be carried by only one person if it is more than 44 lbs.
3. When installing the indoor unit and outdoor unit, sufficient mounting bolts must be used. Make sure the installation support for each unit can support the unit weight.
4. Wear a safety belt if the installation height is higher than 6 feet.
5. Use only approved components or accessories during installation.
6. Make sure no foreign objects are left in the unit after finishing installation.

Refrigerant Safety Precautions:

If refrigerant leaks or requires discharge during installation, maintenance, or disassembly, it should be handled by certified professionals and in compliance with local laws and regulations.

1. Avoid contact between refrigerant and flame. Exposing refrigerant to fire will generates a poisonous gas. Do not lengthen the connection pipe by welding.
2. Use specified refrigerant only. Never mix with any other refrigerant. Never allow air to remain in the refrigerant line, as it can lead to line rupture or other hazards.
3. Make sure there is no refrigerant leaks out when installation is completed.
4. If there is refrigerant leakage, please take sufficient measure to minimize the amount of lost refrigerant.
5. Never touch the refrigerant piping or compressor without wearing gloves to avoid burns or frostbite.

Improper installation can lead to fire hazards, explosion, electric shock or other injury.

Safety Precautions for Installing and Relocating the Unit:

To ensure safety, please be mindful of the following precautions.



WARNINGS

1. When installing or relocating the unit, make sure to keep the refrigerant circuit free of air or substances other than the specified refrigerant.

The presence of any air or other foreign substance in the refrigerant circuit will cause system pressure to rise, or compressor rupture, which can result in injury and property damage.

2. When installing or moving this unit, do not charge with refrigerant which is not comply with the refrigerant listed on the unit's nameplate or specs, or charge with or contaminated refrigerant.

Failure to do so may cause abnormal operation, incorrect function, mechanical malfunction or serious accident.

3. When refrigerant needs to be recovered during relocation or repair of the unit, be sure that the unit is running in cooling mode. Then, fully close the valve at high pressure side (liquid valve). Roughly 30-40 seconds later, fully close the valve at low pressure side (gas valve), then immediately stop the unit and disconnect power. **Please note that the time for refrigerant recovery should not exceed 1 minute.**

If refrigerant recovery takes too much time, air may be sucked into the system and cause pressure to rise or compressor rupture, resulting in injury.

4. During refrigerant recovery, make sure that the liquid valve and gas valve are fully closed and power is disconnected before detaching the connection pipe.

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

5. When installing the unit, make sure that connection pipe is securely connected before running the compressor.

If compressor starts running when stop valve is open and connection pipe is not yet connected, air will be sucked in and cause pressure rise or compressor rupture, resulting in injury.

6. DO NOT install the unit in a location where it may be exposed to corrosive gas or flammable gas.

If there is a gas leak near the unit, it may cause fire or explosion and other accidents.

7. Do not use extension cords for electrical connections. If the electric wire is not long enough, please contact an HVAC supply store or authorized service center and ask for an electric wire that is a proper length. Do not stretch or splice the power line for the unit.

Improper or poor connections can lead to electric shock or fire.

8. Use the specified types of wires for electrical connections between the indoor and outdoor units. Firmly clamp the wires so that the terminals receive no external stresses.

Electric wires with insufficient capacity, incorrect wire connections and insecure wire terminals may cause electric shock or fire.

Tools for Installation and Maintenance



Level meter



Measuring tape



Screw driver



Impact drill



Drill head



Electric drill



Electroprobe



Universal meter



Torque wrench



Open-end wrench



Inner hexagon spanner



Electronic leakage detector



Vacuum pump



Pressure meter



Pipe pliers



Pipe pliers



Pipe cutter



Pipe expander



Pipe bender



Soldering appliance

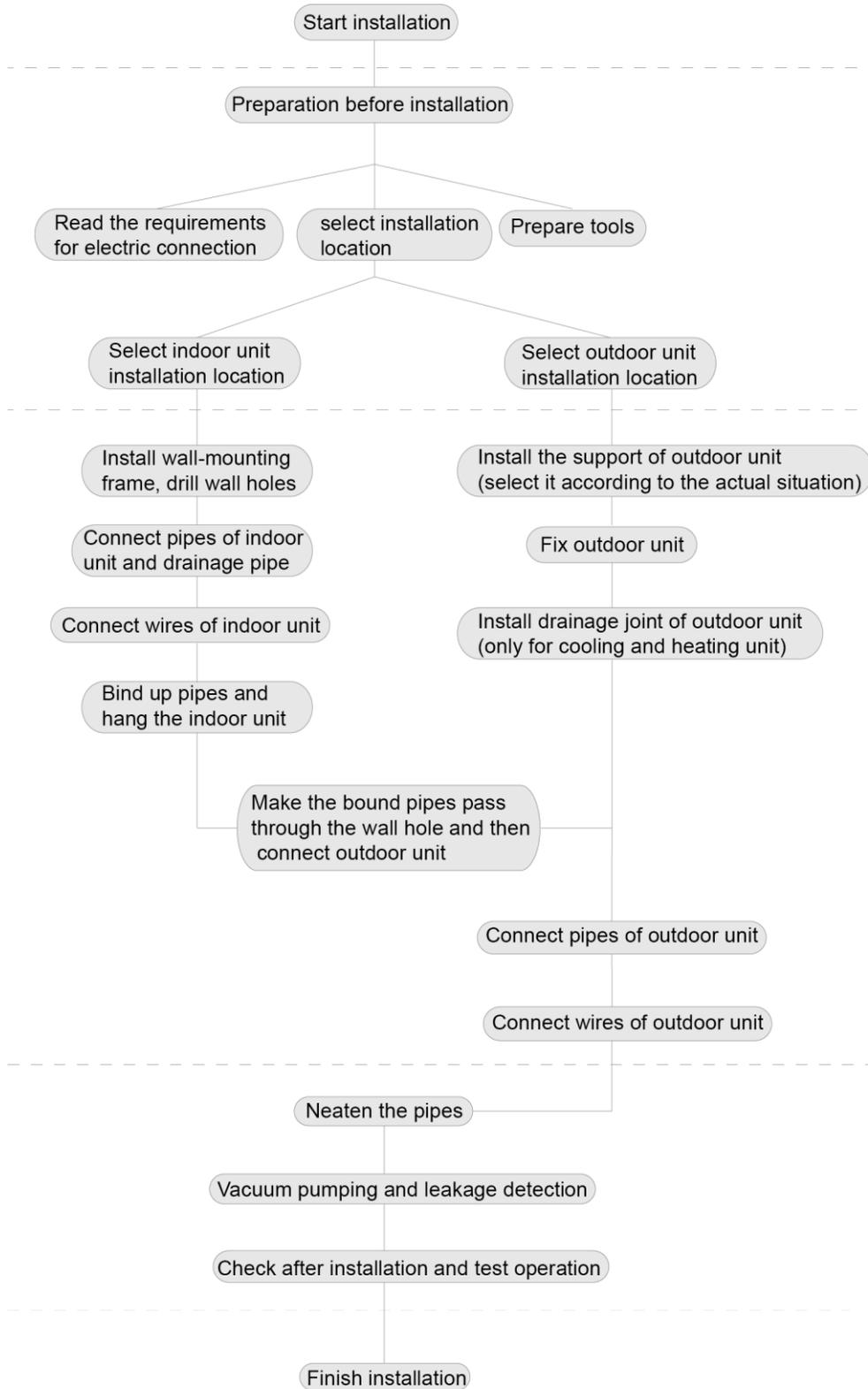


Refrigerant container



Electronic scale

Installation Procedure



Note: this flow is only for reference; please find the more detailed installation steps in this section

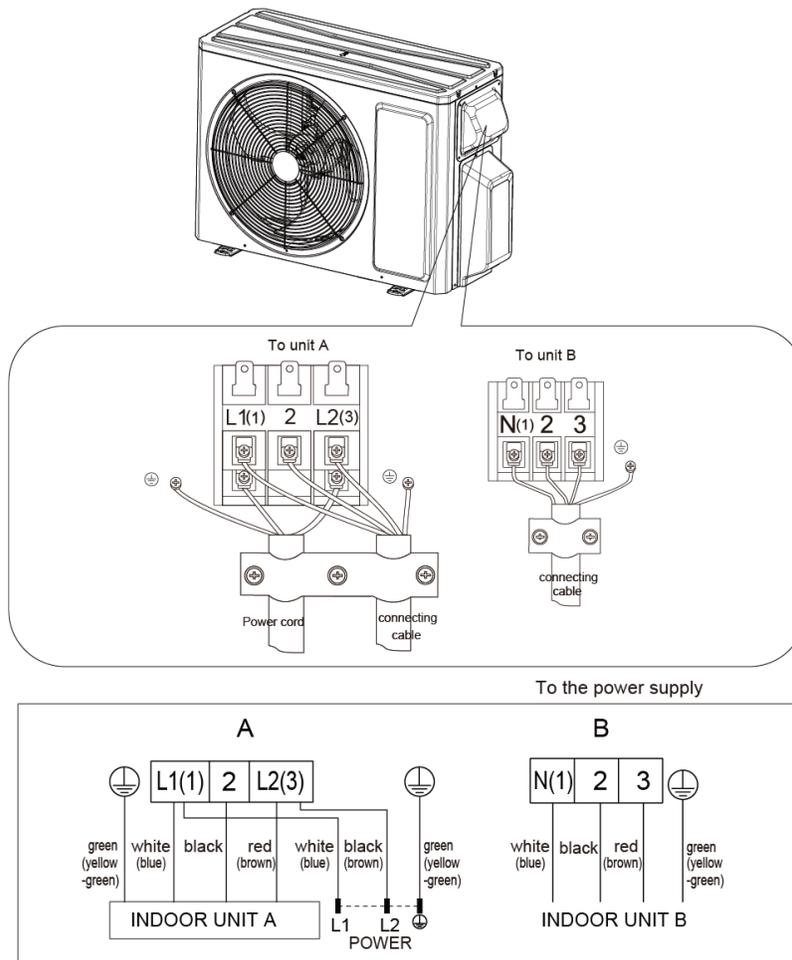
Electrical Connections

1. Remove the handle at the right side plate of the outdoor unit (one screw).
2. Open the cable clamp, then connect the power cables to the terminals. Make sure each wire is securely connected. Make sure the wiring matches on both the terminals of the outdoor unit, and the indoor unit on the terminals. Do not cross wire. (See wiring diagrams below)
3. Secure the power connection wire using the wire clamp.
4. Ensure wire has been firmly attached will.
5. Reinstall the handle.

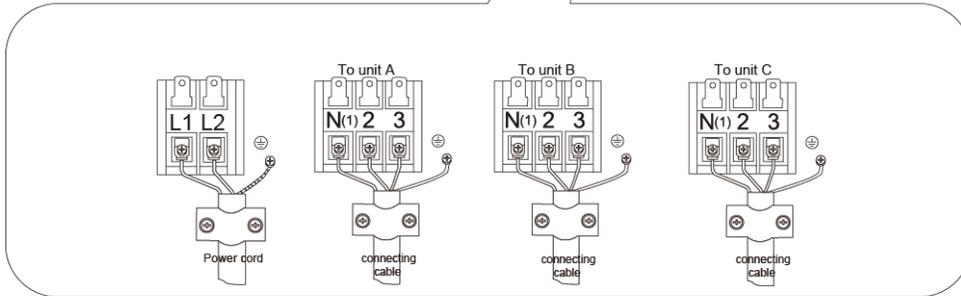
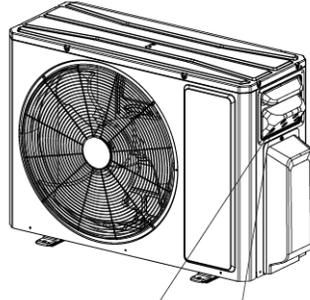
Including an air switch with suitable capacity, please note the following table. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload. (Caution: please do not use the fuse only for protect the circuit)

Air-conditioner	Circuit Breaker Size
WMMS-30CH-V2B(59)5	20A
WMMS-36CH-V2B(59)5	25A
WMMS-42CH-V2B(59)5	35A
WMMS-48CH-V2B(59)5	45A
WMMS-60CH-V2B(59)5	45A

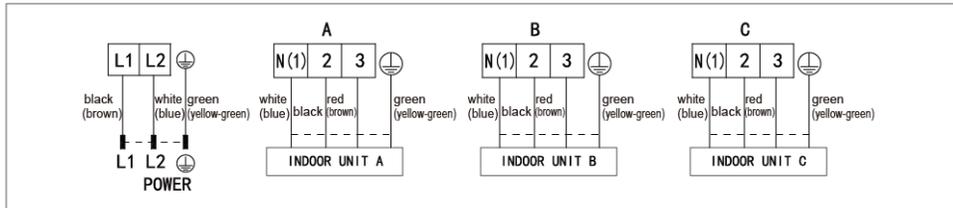
WMMS-30CH-V2B(59)5



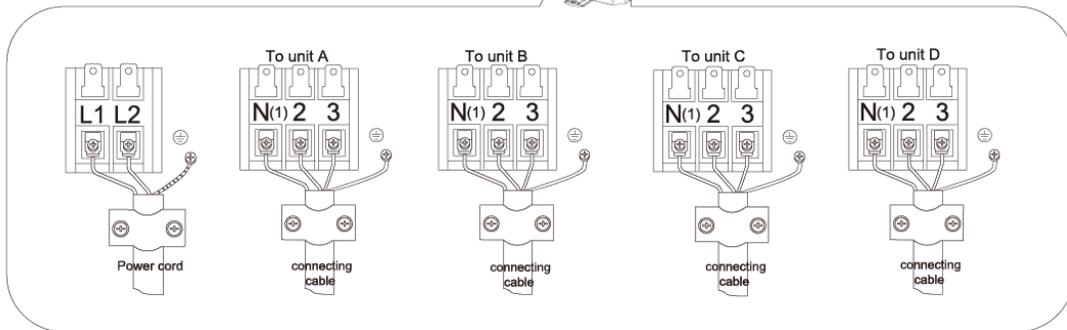
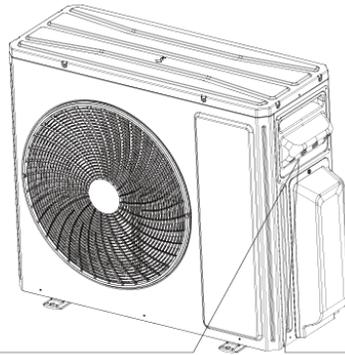
WMMS-36CH-V2B(59)5



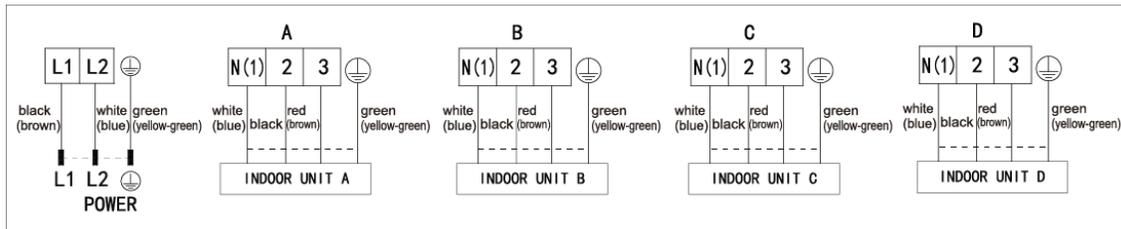
To the power supply



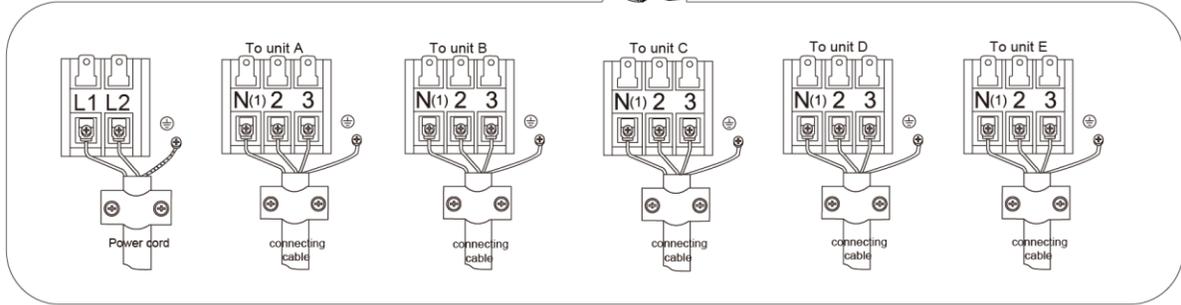
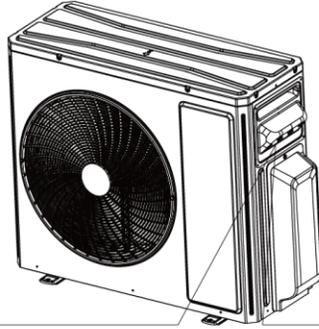
WMMS-42CH-V2B(59)5, WMMS-48CH-V2B(59)5



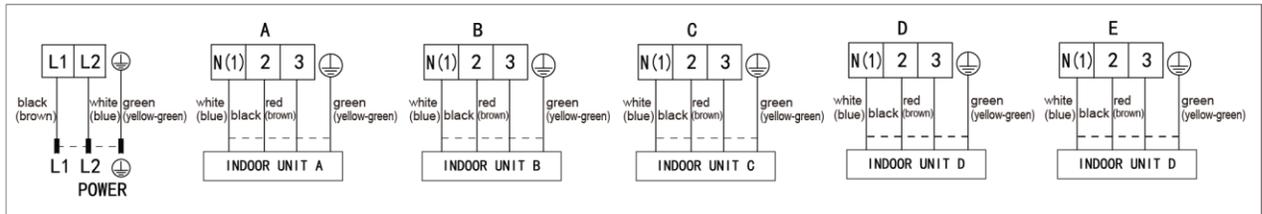
To the power supply



WMMS-60CH-V2B(59)5



To the power supply



Installing the Outdoor Unit

- △ Use bolts to secure the unit to a flat, solid base.
- △ When mounting the unit on a wall or the roof, make sure the support is firmly secured so that it cannot move in the event of intense vibrations or a strong wind.
- △ Do not install the outdoor unit in pits or air vents.

Pipe Installation

- △ Use suitable connecting pipes and equipment for the refrigerant R410A.

Models(m)	Max. connection pipe length	Max. connection pipe length (Simple one indoor unit)
WMMS-30CH-V2B(59)5	40	20
WMMS-36CH-V2B(59)5	60	20
WMMS-42CH-V2B(59)5	80	25
WMMS-48CH-V2B(59)5	80	25
WMMS-60CH-V2B(59)5	100	25

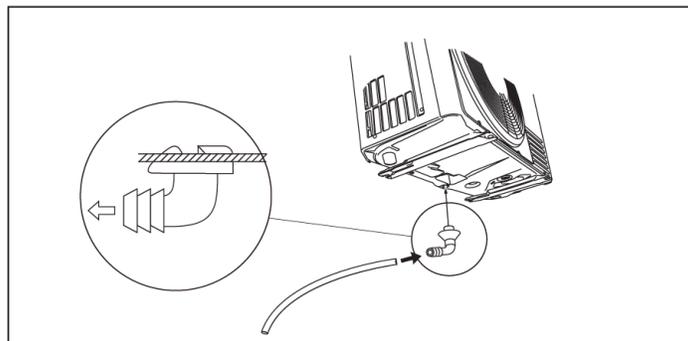
- △ The refrigerant pipes must not exceed the maximum heights.
30K and 36K - 49 ft.
42K, 48K, and 60K – 82 ft.
- △ Wrap all the refrigerant pipes and joints in insulation
- △ Tighten the connections using two wrenches working

Caution: Installation must be performed in Accordance with the NEC/CEC by Qualified Personnel only

Install the drain fitting and the drain hose (for model with heat pump only)

Condensation is produced when the unit runs, and drains from the outdoor unit when the appliance is operating in the heating mode. In order not to disturb neighbors and to respect the environment, install a drain fitting and a drain hose to channel the condensate water.

Install the drain fitting and rubber washer on the outdoor unit chassis and connect a drain hose as shown in the illustration below.



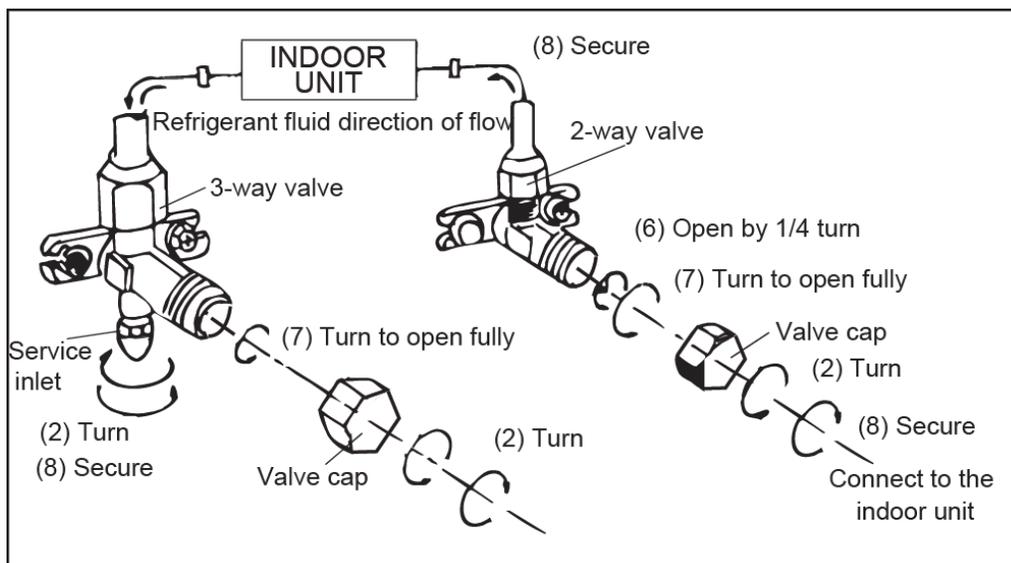
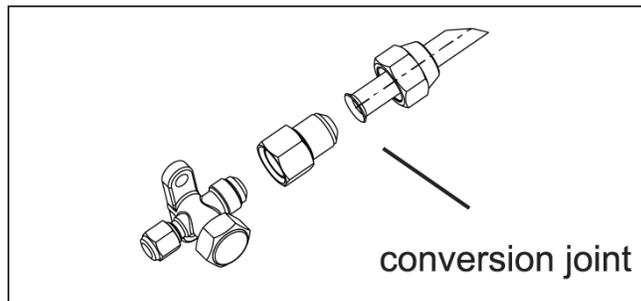
Bleeding

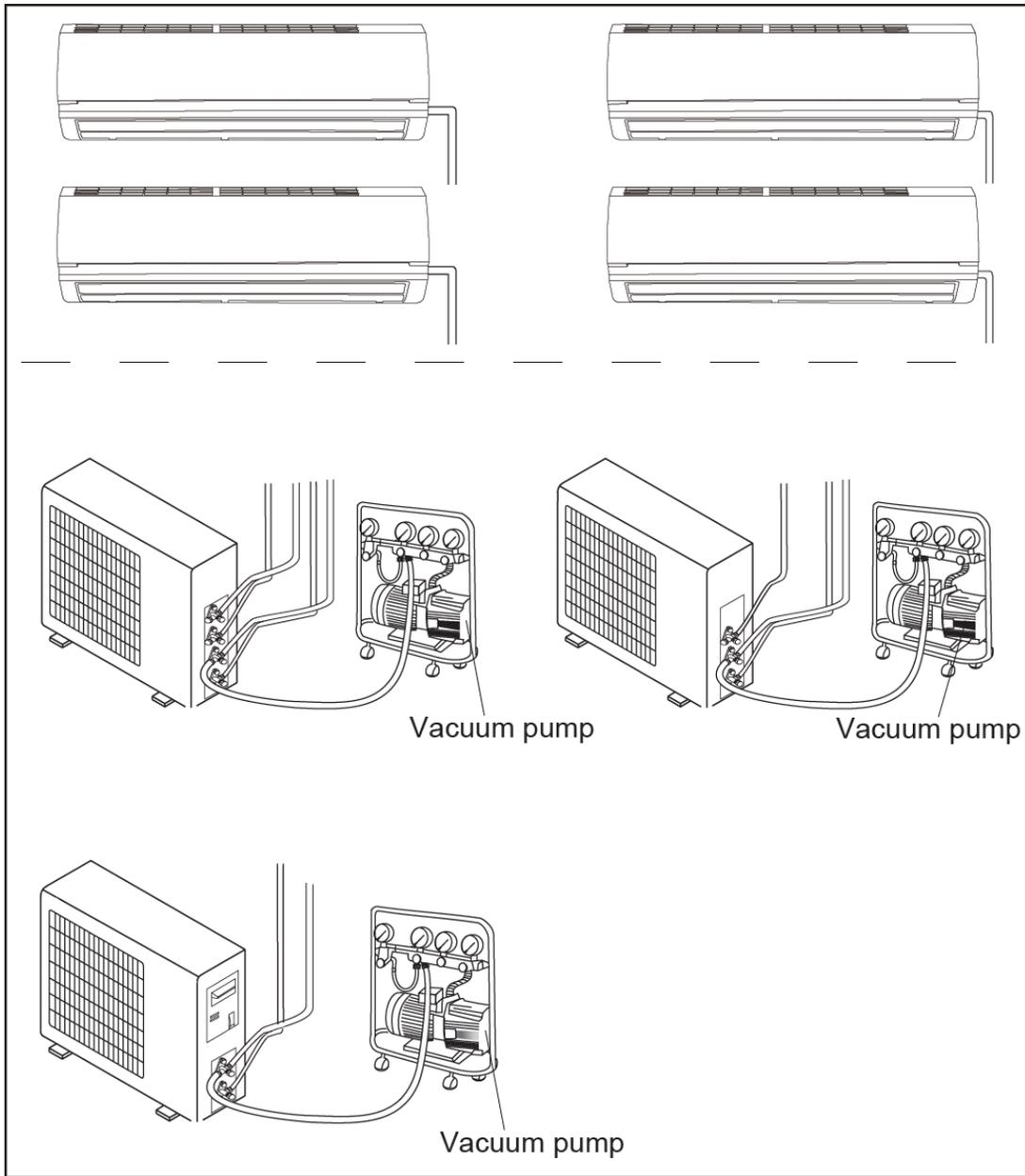
Humid air left inside the refrigerant circuit can cause compressor malfunction. After having connected the indoor and outdoor units, bleed the air and humidity from the refrigerant circuit using a vacuum pump.

1. Unscrew and remove the caps from the 2-way and 3-way valves.
2. Unscrew and remove the cap from the service valve.
3. Connect the vacuum pump hose to the service valve.
4. Operate the vacuum pump for 10-15 minutes until an absolute vacuum of 10 mm Hg has been reached.
5. With the vacuum pump still in operation, close the low-pressure knob on the vacuum pump coupling. Stop the vacuum pump.
6. Open the 2-way valve 1/4 turn and then close it after 10 seconds. Check all the joints for leaks using liquid soap or an electronic leak device.
7. Turn the body of the 2-way and 3-way valves. Disconnect the vacuum pump hose.
8. Replace and tighten all the caps on the valves.

Piping Size (inches)	Torque (N-m)
1/4	15-20
3/8	35-40
5/8	60-65
1/2	45-50
3/4	70-75

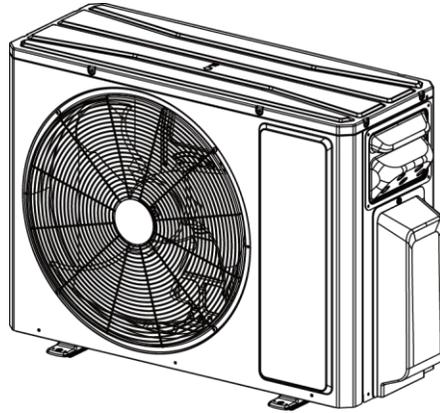
When an adaptor is required for the connection of indoor unit and outdoor unit, the method of pipe connection as follows:





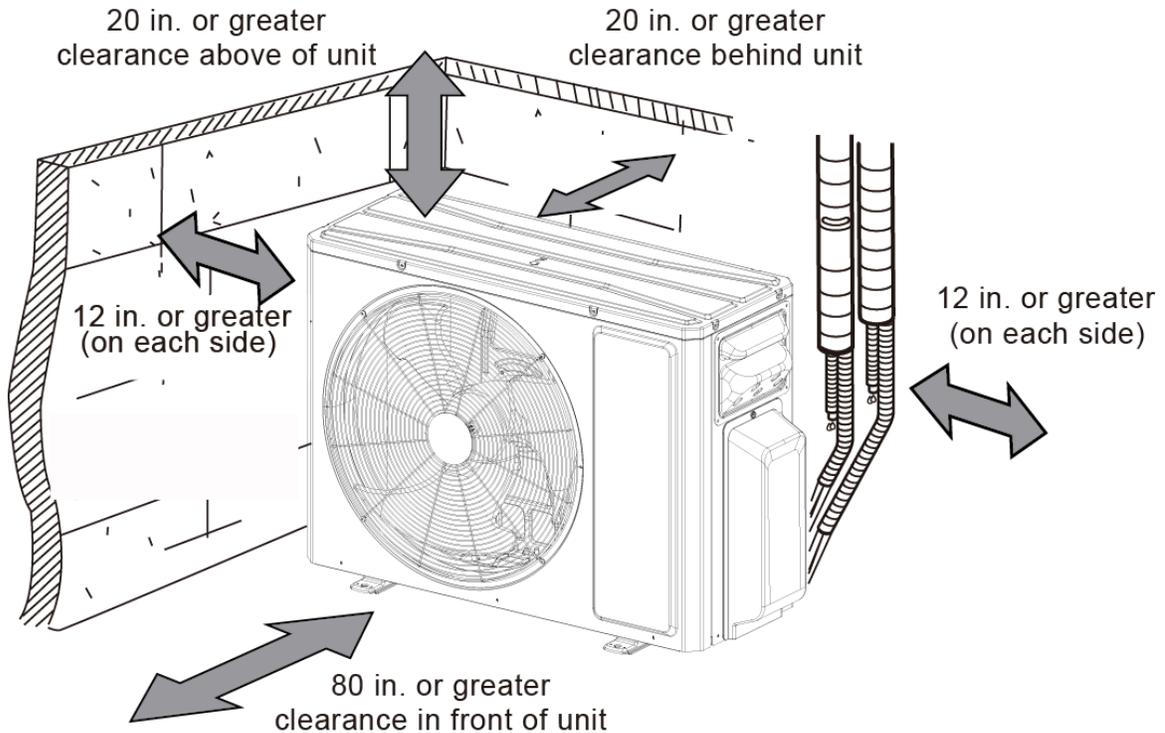
Maintenance

- △ Only use instruments that are designed for use with R410A refrigerant.
- △ Do not use any other refrigerant than R410A.
- △ Do not use mineral spirits or oils to clean the unit.



Installation Location Clearances

- △ Installation should only be done by trained and qualified HVAC service personnel according to the information in this manual.
- △ Contact technical support to answer any questions before installation, to avoid malfunction due to improper installation.
- △ Use proper equipment and trained personnel when elevating or moving the units.
- △ Ensure proper performance of the system by making sure that there is recommended clearances around the appliance.

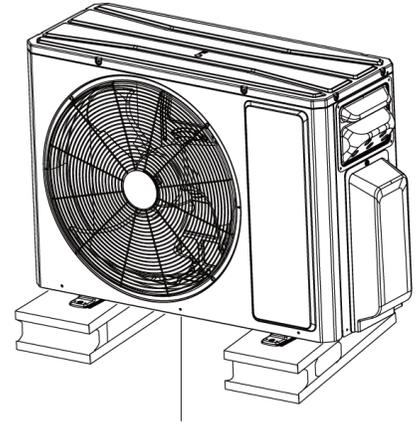


Attach the support of outdoor unit (choose the mounting method appropriate for your installation)

1. Select installation location according to the house structure.
2. Fix the support of outdoor unit on the selected location with expansion screws.

NOTICE:

- Take sufficient precautions when installing the outdoor unit.
- Make sure the support can withstand at least four times the weight of the unit.
- The outdoor unit should be installed at least 1.25 inches above the floor to accommodate the drain fitting. (For models with heating tube, the installation height should be no less than 8 inches.)
 - For units with cooling capacity of 2300W ~ 5000W, 6 expansion screws should be used to secure the unit.
 - For units with cooling capacity of 6000W~ 8000W, 8 expansion screws should be used to secure the unit.
 - For units with cooling capacity of 10000W~16000W, 10 expansion screws should be used to secure the unit.
- When installing the drainage fitting and hose, make sure that the line is not placed in an area that is subject to snow drifts or freezing, as that can cause the drain line to be blocked and freeze up, causing the unit to malfunction.



at least 1.25 in. above the floor

Post Installation Checklist

	Check List Items	Problems Caused by Improper Installation
	Is the installation securely attached to the base, bracket or pad?	Failure to secure the unit can lead to the unit falling, vibrating or making excessive noise.
	Has the refrigerant lines been checked for leaks?	Failure to check for leakage will cause system cooling and heating performance issues, and can lead to damage of components.
	Are the refrigerant lines adequately insulated?	Failure to adequately insulate the refrigerant lines may cause condensation and moisture.
	Is drainage smooth and unobstructed?	Improper drain installation can lead to freeze ups in the winter or water dripping.
	Is the power supply voltage match with the rated voltage specified on the nameplate?	The unit may bread down or the components may be burned out
	Are the wires and refrigerant lines correctly installed?	The unit may break down or the components may be burned out. Make sure to not cross-pipe or cross-wire units.
	Has the unit been safely grounded?	Risk of electrical leakage or shock.
	Are the electrical wires the correct wire size, and are the refrigerant lines the correct size for the system's indoor unit models?	Failure to use the correct wire gauges or refrigerant line sizes will lead to component failure or system break down.
	Are there any obstacles near the air inlet and outlet of the indoor and outdoor units?	If the units cannot circulate air appropriately, the unit will overheat, causing component failure or system break down.
	Have the length of refrigerating pipe and refrigerant charge amount been recorded?	Keeping an accurate record of the length of all of the refrigerant lines used is the best way to make sure that your system has the correct refrigerant charge. This makes leaks easier to detect, and makes sure any future maintenance is done correctly.

Maintenance

Precautions before Performing Inspection or Repair

There are high-capacity electrolytic capacitors on the outdoor mainboard. Thus, even the power is cut off, there is high voltage inside the capacitors and it needs more than 20 minutes to reduce the voltage to a safety level. Touching the electrolytic capacitor within 20 minutes after cutting the power can cause electric shock. If maintenance is needed, follow the steps below to discharge electricity of electrolytic capacitor after power off.

- 1) Open the top cover of outdoor unit and then remove the cover of electric box cover.

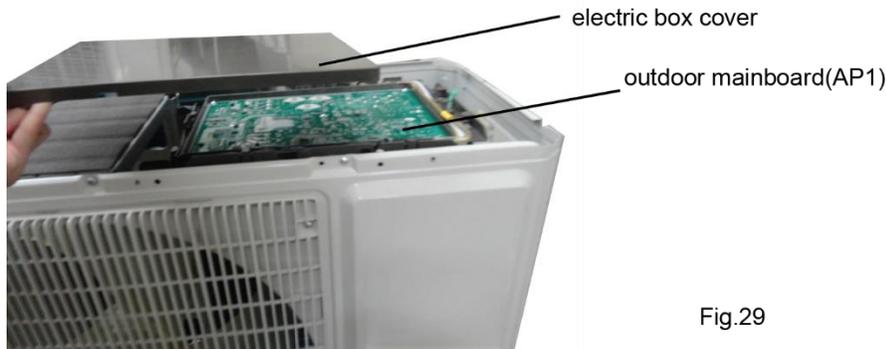


Fig.29

- 2) As shown in the fig below, connect the plug of discharge resistance (about 100ohm, 20W) (If there is no discharge resistance, you can use the plug of soldering iron as shown in the illustration below) to point A and B of electrolytic capacitor. There may be sparks when touching them. Press them forcibly for 30s to discharge electricity of electrolytic capacitor

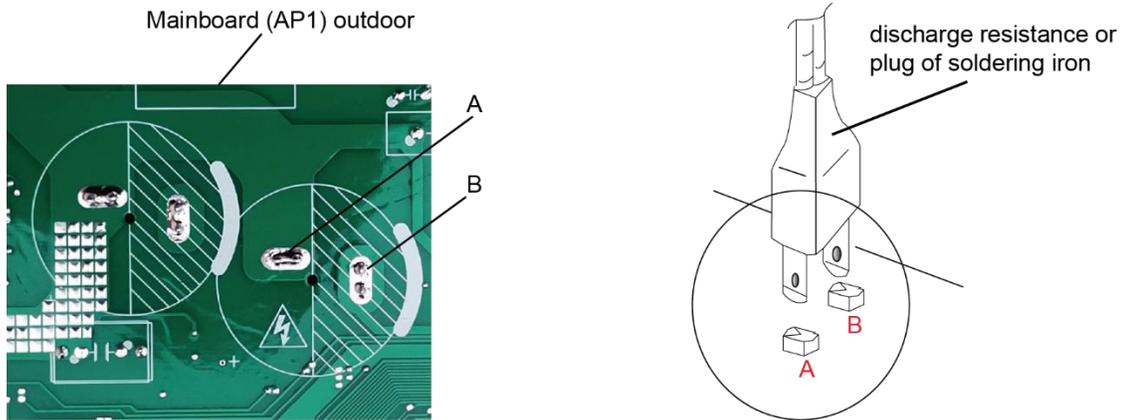


Fig.30

- 3) After finishing the discharging electricity, measure the voltage between point A and B with a universal meter to make sure the electricity discharge is complete, and prevent electric shock.

If the voltage between the two points is below 20V, you can safely perform maintenance.

Flashing LED of Indoor/Outdoor Unit and Primary Judgement

1. Priority of the malfunction display.
When several malfunctions happen at the same time, each malfunction codes will be displayed in a series, and repeat until the malfunction is resolved.
2. Malfunction display method
 - a. Hardware malfunction: it will be displayed immediately. Please refer to “Malfunction status table”
 - b. Operation status: it will be displayed immediately. Please refer to “Malfunction status table”
 - c. Other malfunction: It will be displayed after the compressor has been stopped for 200 seconds. Please refer to “Malfunction status table”
(Note: when the compressor starts up again, malfunction display waiting time (200s) will be cleared.)
3. Malfunction display control Indoor unit displays malfunction code as shown in the sheet below. ODU communication light will be off for 1s and then blink for 1s circularly.

Malfunction	Malfunction Type	Nixie tube
Zero cross detection circuit malfunction	Hardware malfunction	U8
Malfunction protection of jumper cap	Hardware malfunction	C5
Feedback of without IDU motor	Hardware malfunction	H6
Indoor ambient temperature sensor is open/short circuited	Hardware malfunction	F1
Indoor evaporator temperature sensor is open/short circuited	Hardware malfunction	F2
Liquid valve temperature sensor is open/short circuited	Hardware malfunction	b5
Gas valve temperature sensor is open/short circuited	Hardware malfunction	b7
Modular temperature sensor is open/short circuited	Hardware malfunction	P7
Outdoor ambient temperature sensor is open/short circuited	Hardware malfunction	F3
Outdoor condenser middle pipe temperature sensor is open/short circuited	Hardware malfunction	F4
Outdoor discharge temperature sensor is open/short circuited	Hardware malfunction	F5
Communication malfunction	Hardware malfunction	E6
Malfunction of phase current detection circuit for compressor	Hardware malfunction	U1
Communication malfunction	Viewing malfunction code through remote controller within 200 seconds.	HE
Malfunction of phase current detection circuit for compressor		U3
Communication malfunction		P8
Malfunction of phase current detection circuit for compressor	Displayed directly on nixie tube after 200 seconds	F0
Communication malfunction	Hardware malfunction	PU
Malfunction of phase current detection circuit for compressor	Hardware malfunction	E1
Communication malfunction	Hardware malfunction	E3
Compressor overload protection	Viewing malfunction code through remote controller within 200 seconds. Displayed directly on nixie tube after 200 seconds	H3
Indoor unit and outdoor unit do not match	Hardware malfunction	LP
Malfunction of memory chip	Hardware malfunction	EE
Wrong connection of communication wire or malfunction of electronic expansion valve	Hardware malfunction	dn
Malfunction of complete units current detection	Hardware malfunction	U5
Malfunction protection of outdoor fan 1	Hardware malfunction	L3

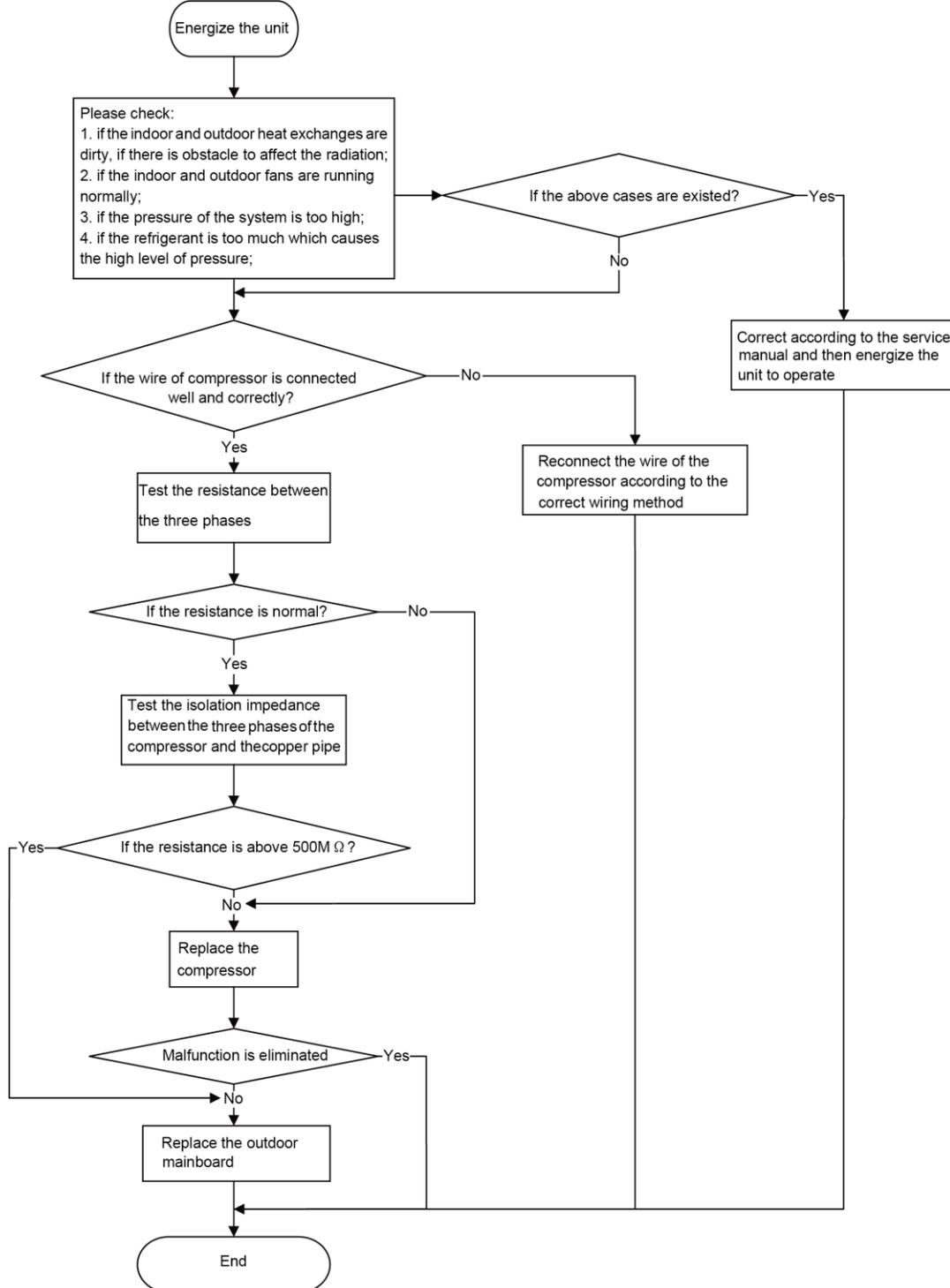
Compressor demagnetization protection	Viewing malfunction code through remote controller within 200 seconds.	HE
Malfunction of voltage dropping for DC bus-bar		U3
Module high temperature protection		P8
Refrigerant lacking or blockage protection of system (not available for residential ODU)	Displayed directly on nixie tube after 200 seconds	F0
Charging malfunction of capacitor	Hardware malfunction	PU
High pressure protection of system	Hardware malfunction	E1
Low pressure protection of system (reserved)	Hardware malfunction	E3
Detection status of wrong connection of communication wire or malfunction of electronic expansion valve	Operation status	dd
Mode conflict	Operation status	E7
Refrigerant recycling mode	Operation status	Fo
X-fan	Operation status	AL
Defrosting or oil return in heating mode	Operation status	H1
Start failure of compressor	Viewing malfunction code through remote controller within 200 seconds.	Lc
High discharge temperature protection of compressor		E4
Overload protection		E8
Whole unit overcurrent protection		E5
Compressor phase current protection		P5
Compressor desynchronizing		H7
Compressor phase-lacking/phase-inverse protection		Ld
IPM modular protection		H5
DC bus-bar low voltage protection		PL
DC bus-bar high voltage protection		PH
PFC protection		HC
The four-way valve is abnormal		U7
Start failure of compressor		Lc

Malfunction Checking and Elimination

1. IPM protection malfunction:

Main items to check:

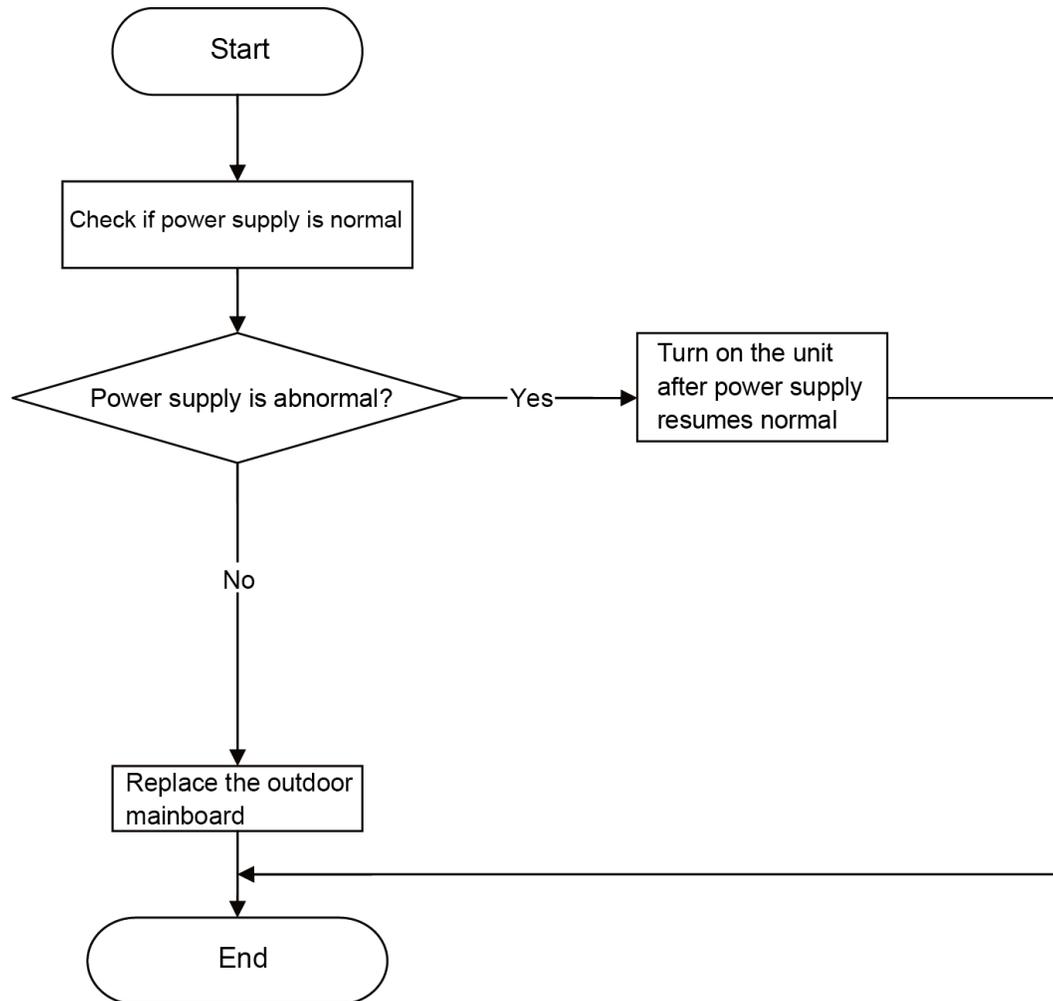
- Is the input voltage of the unit is within normal range?
- Is the connection wire of compressor firmly connected? Is it loose? Is the connection sequence correct?
- Is the resistance of compressor coil normal? Is the isolation of compressor coil with copper pipe good?
- Is the unit overloaded? Is the heat radiation of the unit good?
- Is the refrigerant charge is correct?



2. PFC protection malfunction, capacity charging malfunction

Main items to check:

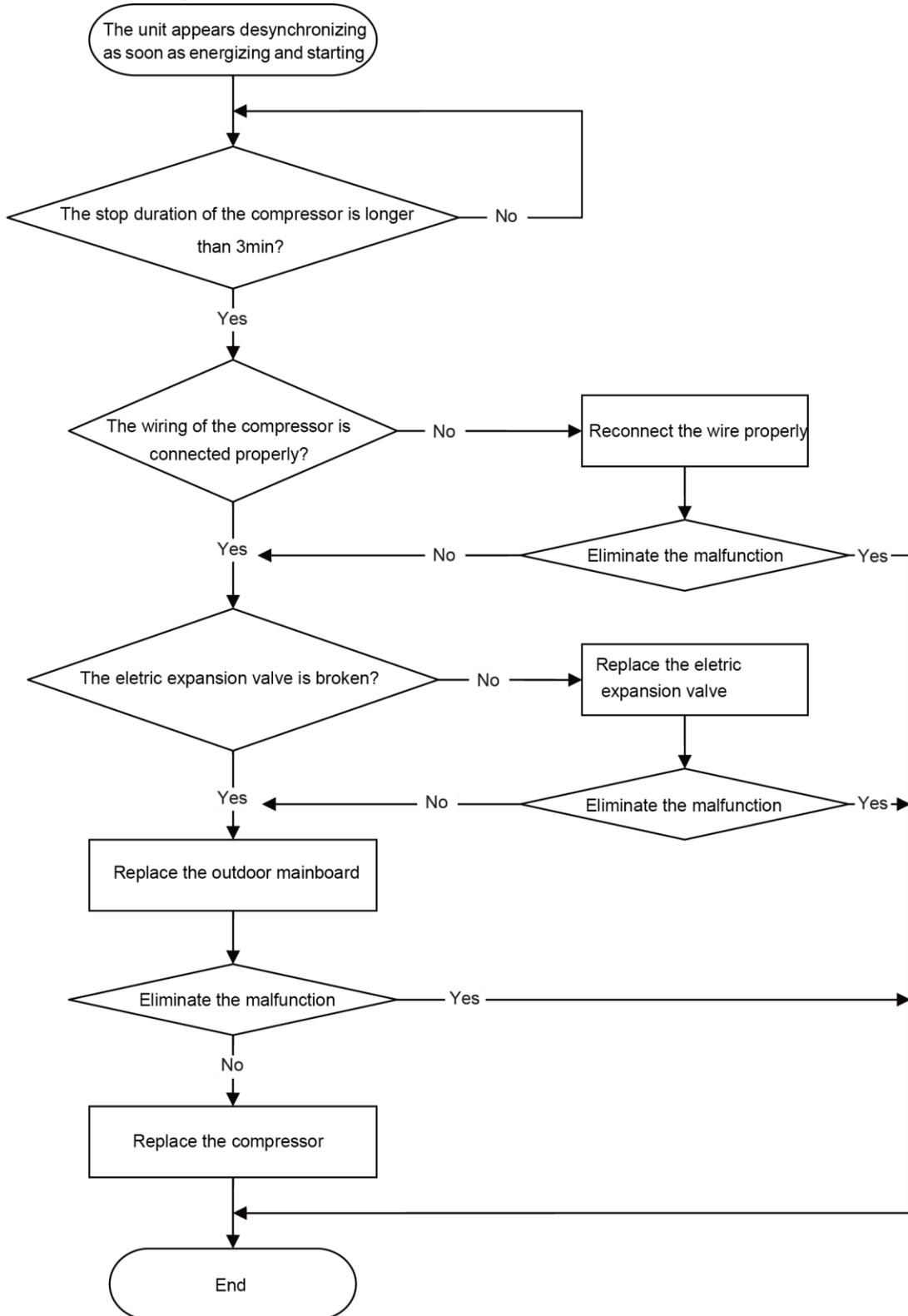
- Is the mainboard broken or damaged
- Is the wiring of the induction connected well, and is the induction broken

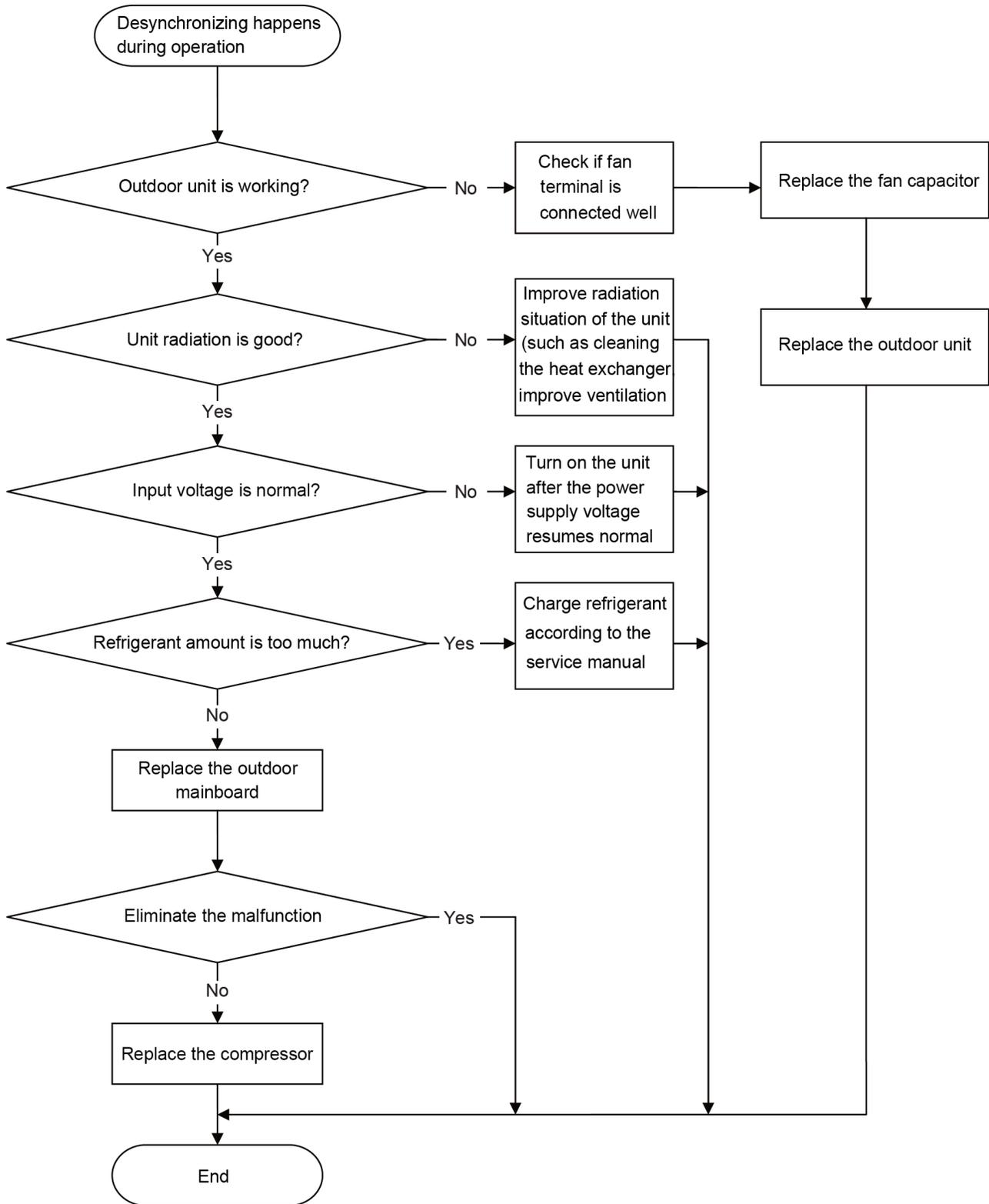


3. Compressor desynchronizing malfunction

Main items to check:

- Is the electric expansion valve working normally or it is broken
- Is the pressure of the system too high
- Is the radiation of the unit good

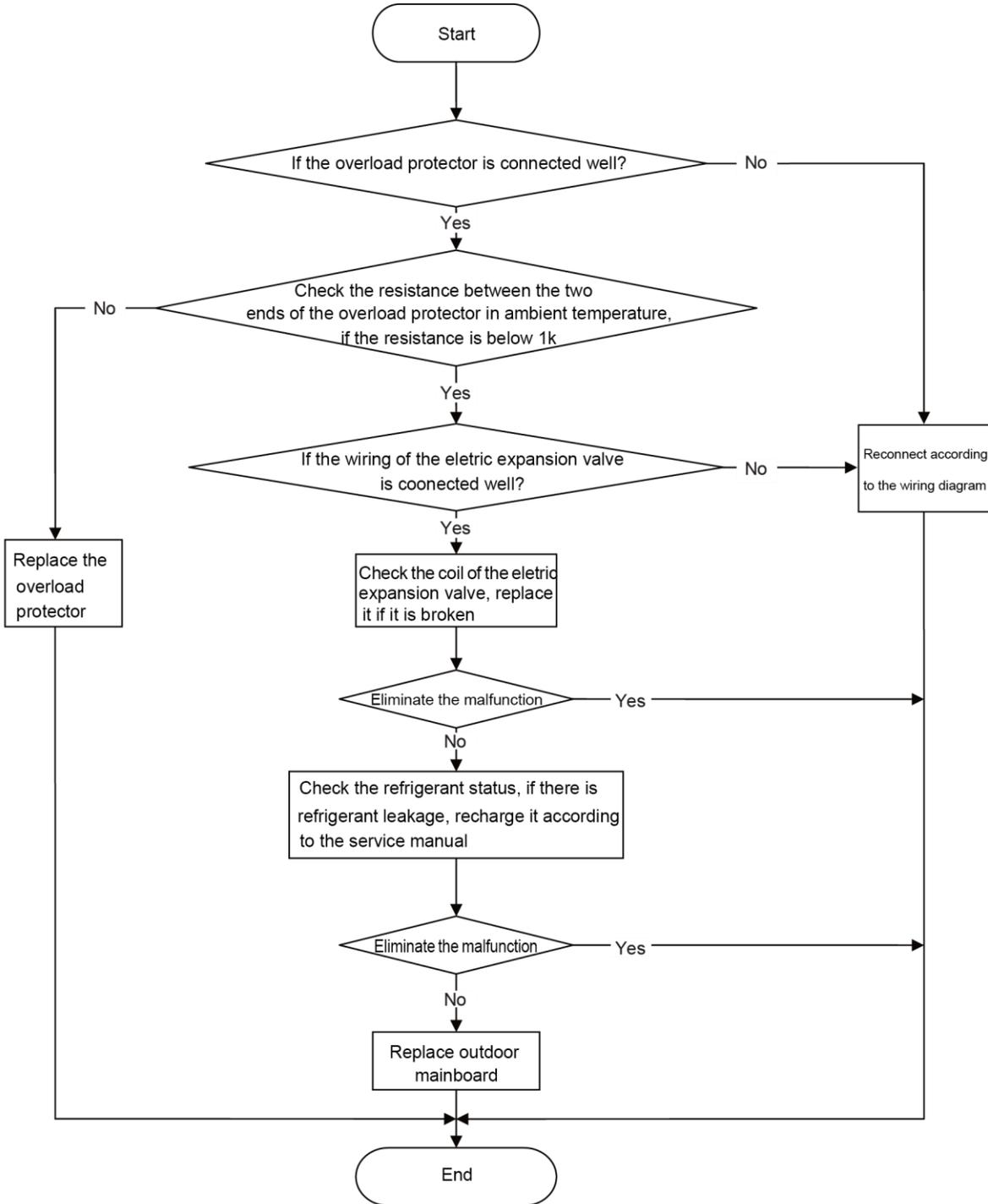




4. Compressor overload, discharge protection malfunction

Main items to check:

- Is there a refrigerant leakage
- Is the electronic expansion valve well connected or is it broken
- Is the overload protector damaged or broken



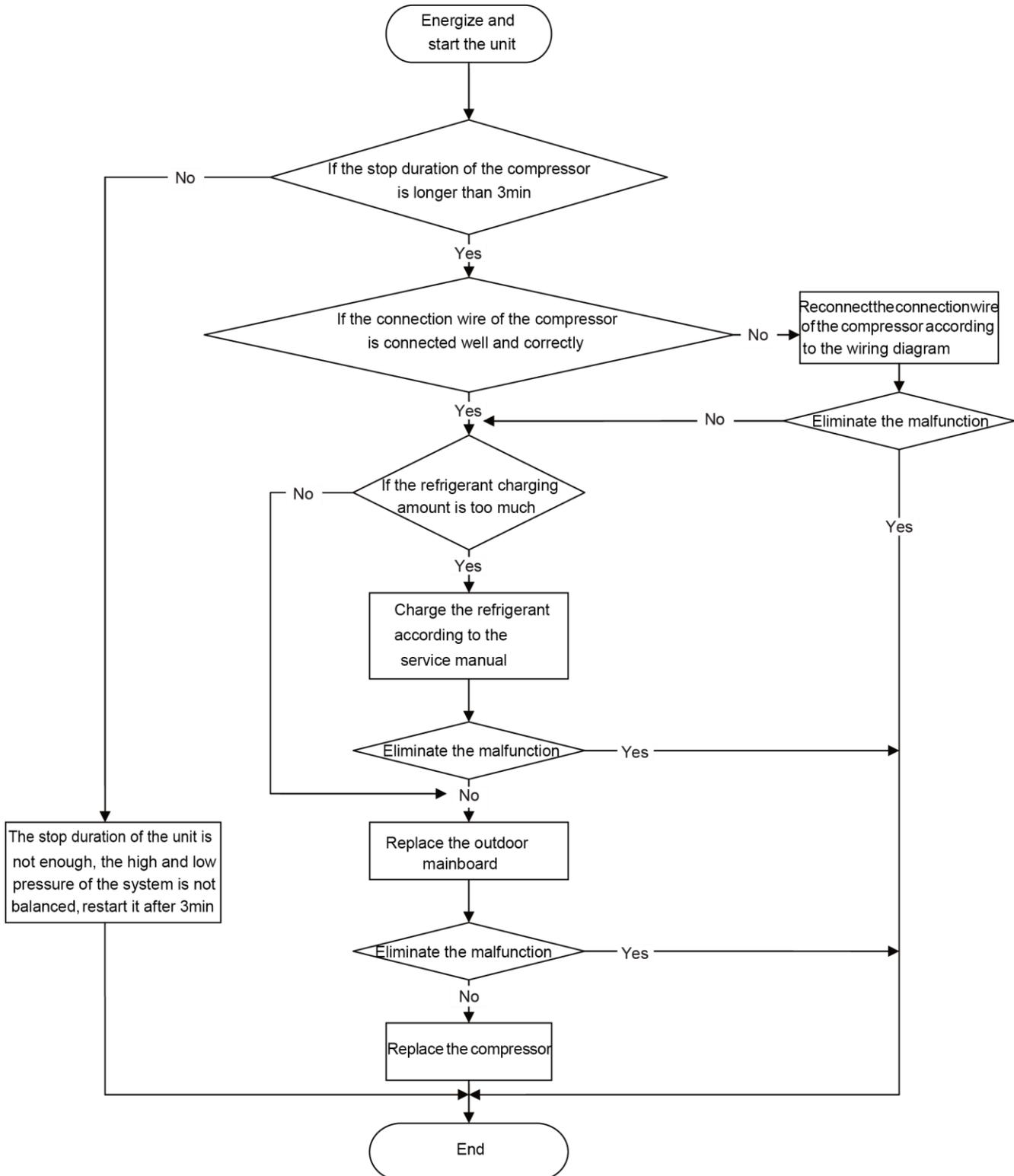
Note:

The detection method of the electronic expansion valve coil. There are five pieces of coil for the electronic expansion valve, the resistance of each of them (the leftmost or right most coils) is almost the same as the resistance of the other terminals (within 100 Ω). You can determine the condition of the electronic expansion valve by measuring its resistance

5. Start failure malfunction

Main items to check:

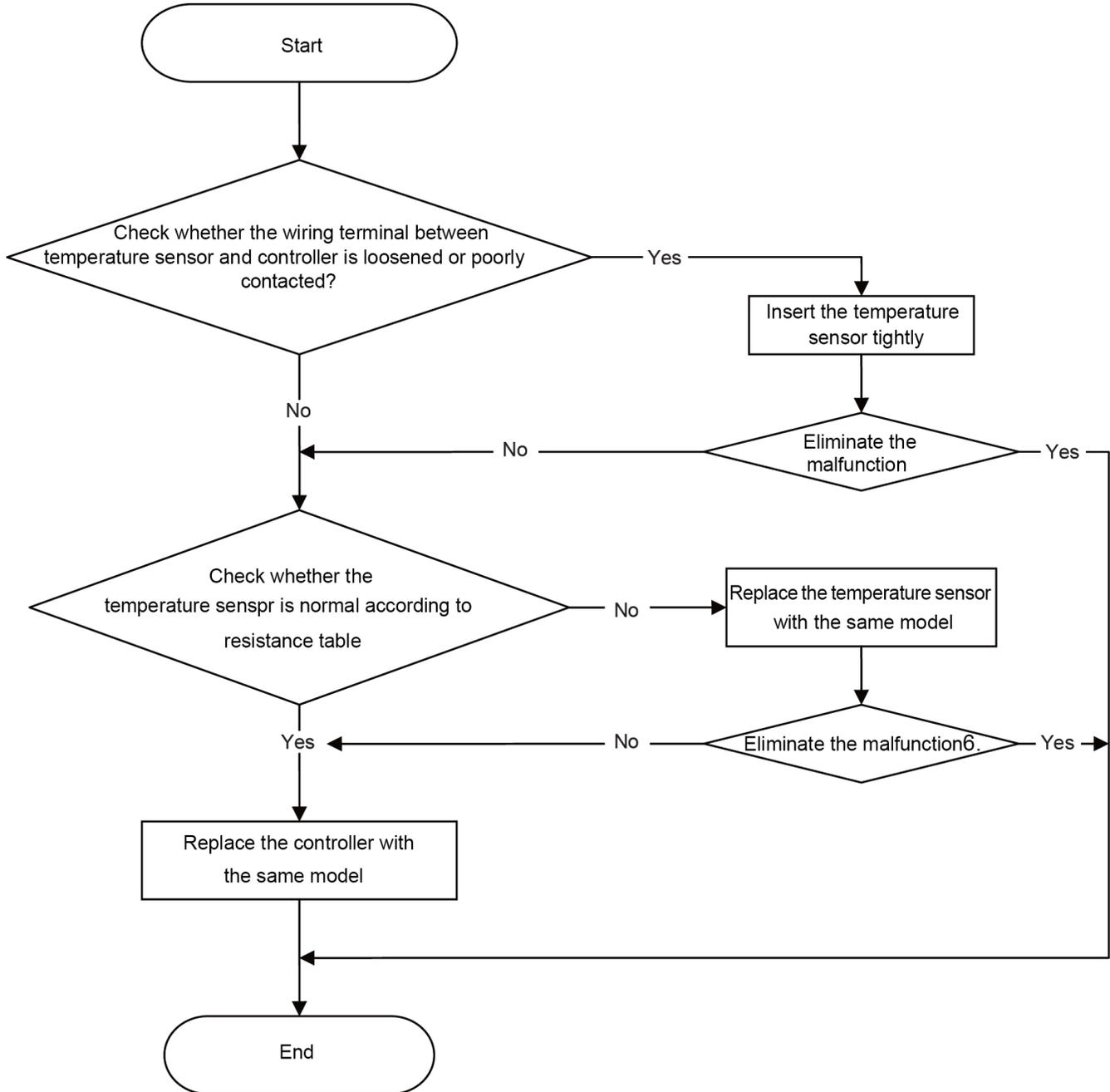
- If the stop duration of the compressor is sufficient;
- If the connection wire of the compressor is connected properly;
- If the compressor is broken; Flow chart: If the refrigerant charging amount is too much



6. Temperature sensor malfunction

Main items to check:

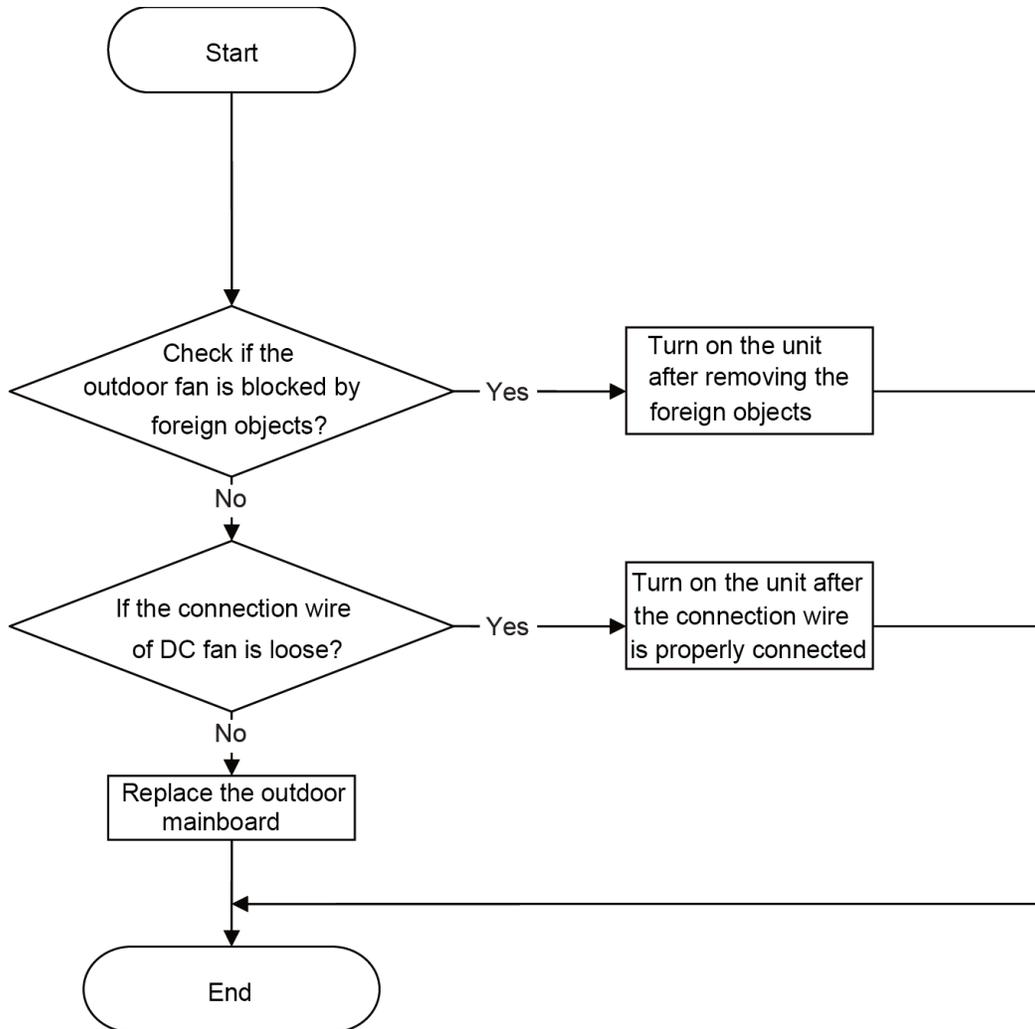
- Is the terminal of the temperature sensor loose or disconnected
- Is the temperature sensor is damaged or broken
- Is the main board is damaged or broken



7. DC fan malfunction

Main items to check:

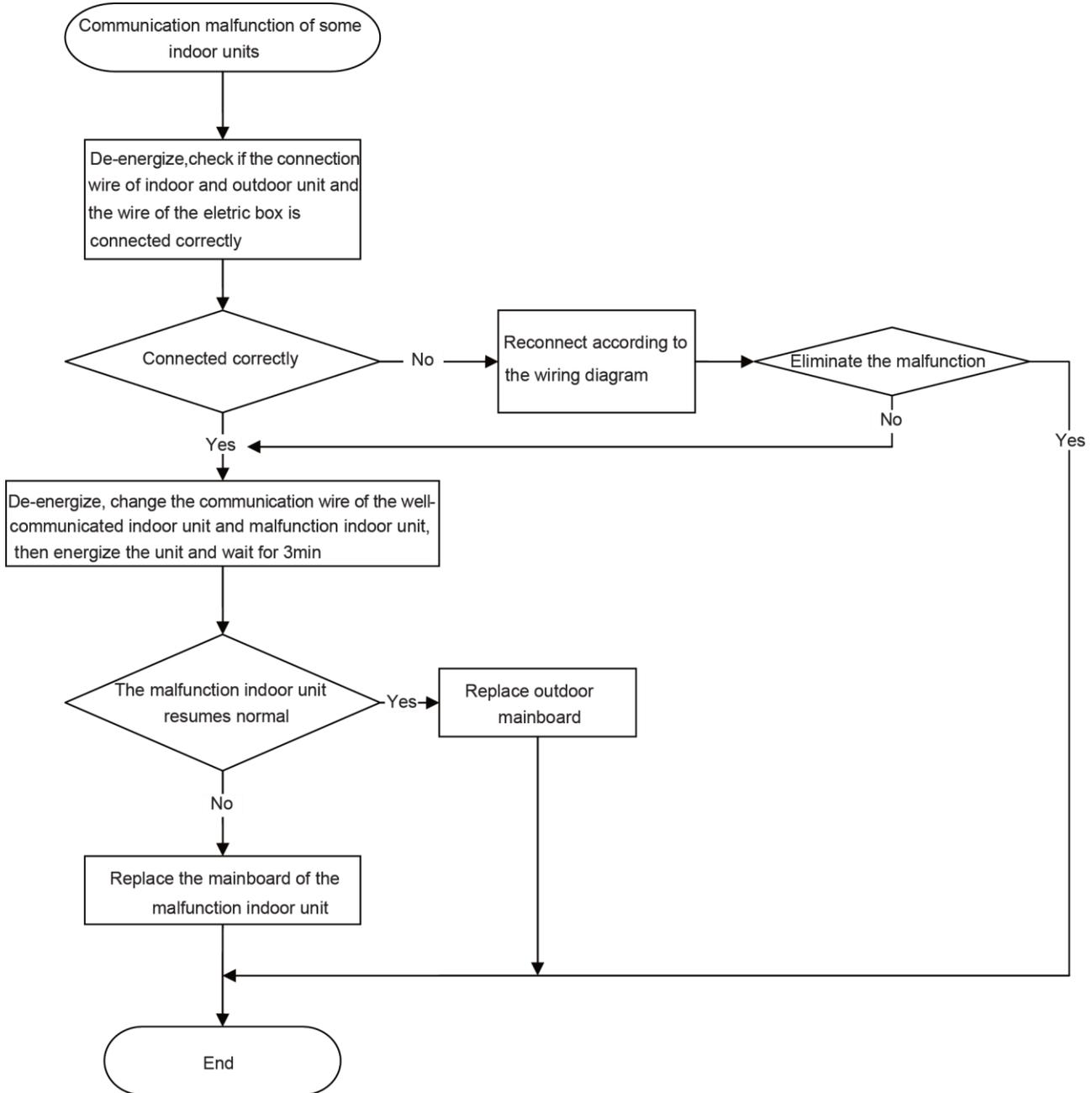
- Is the outdoor fan is blocked by foreign objects
- The connection wire of DC fan is connected securely? If it is loose?

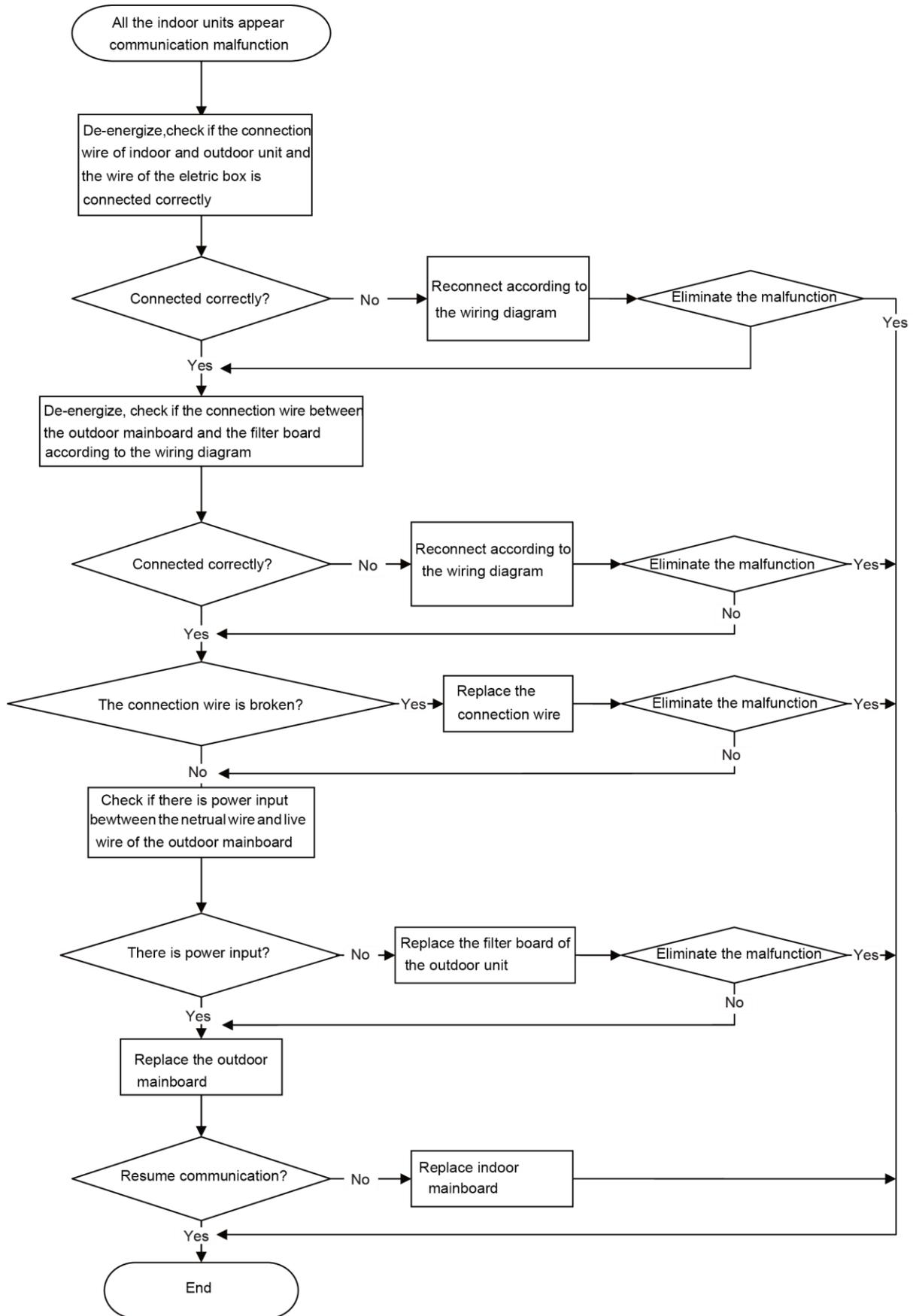


8. Communication malfunction

Main items to check:

- Is the connection wire between the indoor unit and outdoor unit is correctly and securely connected
- Is the wires inside the unit is securely connected
- Is the indoor mainboard or outdoor main board is broken

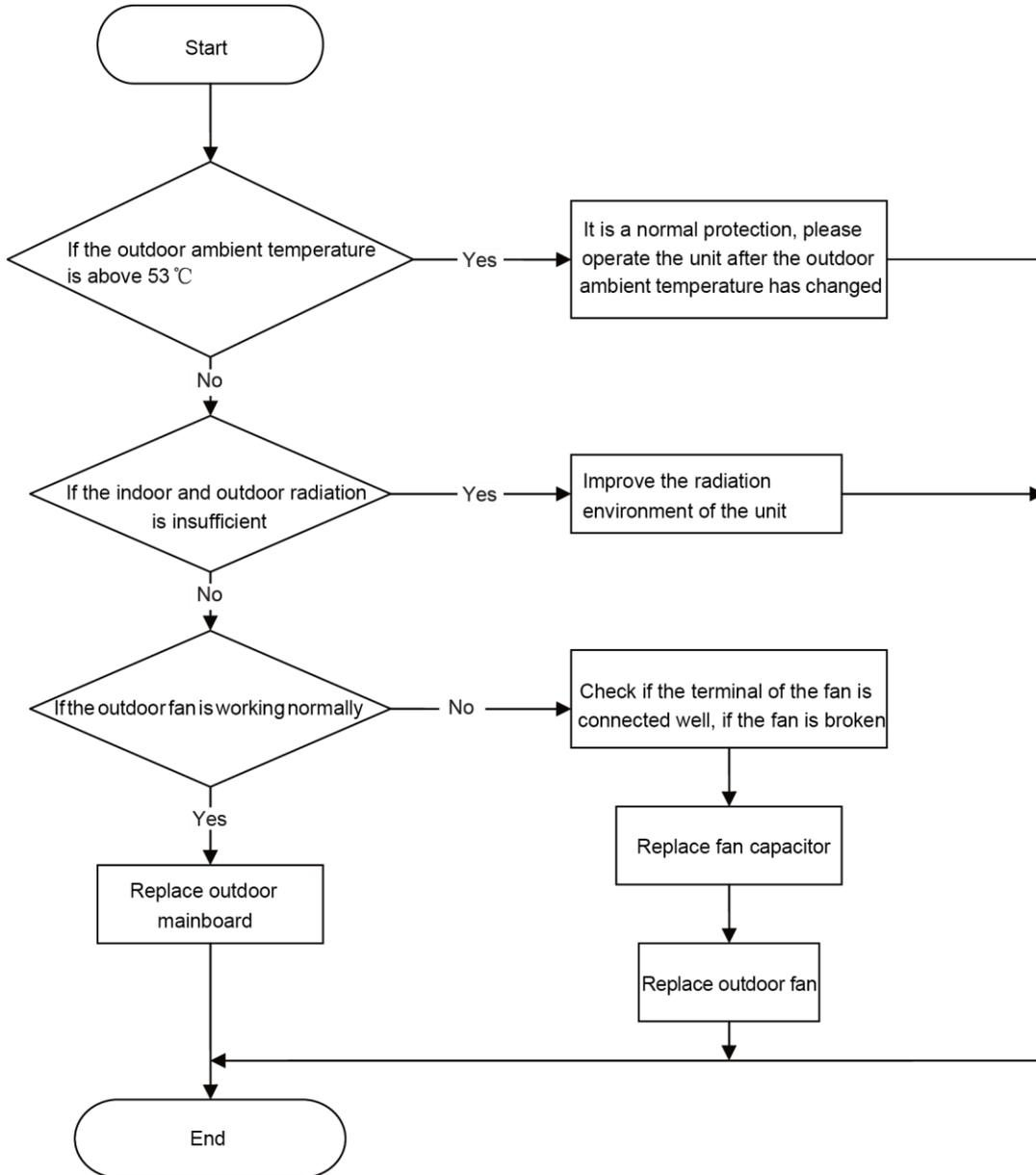




9. Anti-high temperature and overload malfunction

Main items to check:

- Is the indoor fan and outdoor fan running normally
- Is the outdoor ambient temperature within the normal operating range
- Is the indoor and outdoor radiation environment is good (proper clearances, adequate air flow)



Troubleshooting for Normal Malfunctions

1. Air Conditioner Will Not Start Up

Possible Causes	Determination Method (Air conditioner Status)	Troubleshooting
No power supply, or power cable poorly connected	After energizing, operation indicator isn't lit and the buzzer makes no sound	Confirm whether it is due to power failure. If yes, wait for power recovery. If not, check power supply circuit and make sure the power wire is securely connected.
Incorrect wire connection between the indoor unit and outdoor unit, or poor connection to wire terminals	Under normal power supply circumstances, operation indicator isn't lit after energization	Check the wiring according to circuit diagram and connect wires correctly. Make sure all wiring terminals are securely connected.
Electric leakage from air conditioner	After energization, circuit breaker trips immediately.	Make sure the air conditioner is properly grounded. Make sure wires of air conditioner are connected correctly. Check the wiring inside air conditioner. Check whether the power wire insulation is damaged. If yes, replace the power wire.
The circuit breaker used for the system is not adequate for the outdoor unit model.	After energization, circuit breaker kicks off	Install proper sized circuit breaker
Malfunction of remote controller	After energization, power indicator is lit on display. No response to remote controller or buttons.	Replace batteries for remote controller Repair or replace remote controller

2. Poor Cooling (or Heating) performance for Air Conditioner

Possible Causes	Determination Method (Air conditioner Status)	Troubleshooting
Set temperature is improper	Check the temperature set on remote controller	Adjust the set temperature
Rotation speed of the IDU fan motor is set too low	Not enough air circulation	Set the fan speed at high or medium
Filter of indoor unit is blocked	Check the filter to see its blocked	Clean the filter
Installation position for indoor unit and outdoor unit is improper	Check whether the installation position is appropriate according to installation requirements for air conditioner	Adjust the installation position. Install the outdoor unit in an area that is out of the rain or direct sunlight.
Refrigerant leak	The discharge air temperature in cooling mode is higher than normal. The discharged air temperature in heating mode is lower than normal. Units system pressure is much lower than normal range	Find the leakage cause and seal the leak. Add refrigerant.
Malfunction of 4-way valve	Unit blows cold air during heating	Replace the 4-way valve
Capillary Malfunction	Circulated air temperature in cooling mode is warmer than normal circulated air temperature. Circulated air temperature in heating mode is cooler than normal circulated wind temperature. System pressure is substantially lower than normal operating range. If there is no refrigerant leak, part of capillary is blocked	Replace the capillary

Insufficient valve flow volume	The pressure of valves is much lower than that stated in the specification	Make sure the valve is open completely
Horizontal louver malfunction	Horizontal louver can't swing	Refer to point3 of maintenance method for details
IDU fan motor malfunction	The IDU fan motor can't operate	Refer to troubleshooting for H6 error code for maintenance method in details
ODU fan motor malfunction	The ODU fan motor can't operate	Refer to point4 of maintenance method for details
Compressor malfunction	Compressor cannot operate	Refer to point5 of maintenance method for details

3. Horizontal Louver Cannot Swing

Possible Causes	Determination Method (Air conditioner Status)	Troubleshooting
Incorrect wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram. Make sure all wiring terminals are securely connected.
Step motor is damaged	Step motor can't operate	Repair or replace stepping motor
Main board is damaged	Others are all normal, while horizontal louver can't operate	Replace the main board with the same model

4. ODU Fan Motor Cannot Operate

Possible causes	Determination Method (Air conditioner Status)	Troubleshooting
Incorrect wire connection, or poor connection	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
ODU fan motor capacitor is damaged	Measure the capacity of the fan capacitor with a universal meter and see if the capacitor is reading outside of the deviation range. The appropriate range will be indicated on the nameplate of fan capacitor.	Replace the capacitor of fan motor.
Power voltage is a little low or high	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Motor of outdoor unit is damaged	When unit is turned on, cooling or heating performance is poor and ODU compressor generates a lot of noise and heat.	Change compressor oil and refrigerant. If no better, replace the compressor with a new one

5. Compressor Cannot Operate

Possible causes	Determination Method (Air conditioner Status)	Troubleshooting
Incorrect wire connection, or poor connection.	Check the wiring status according to circuit diagram	Connect wires according to wiring diagram to make sure all wiring terminals are connected firmly
Compressor capacitor is damaged.	Measure the capacity of fan capacitor with a universal meter and see if the capacity is out of the normal operating range indicated on the nameplate of fan capacitor.	Replace the compressor capacitor
Power voltage is low or high.	Use universal meter to measure the power supply voltage. The voltage is a little high or low	Suggest to equip with voltage regulator
Compressor coil is burnt out.	Use a universal meter to measure the resistance between compressor terminals and its 0.	Repair or replace compressor
Cylinder of compressor is blocked.	Compressor cannot operate.	Repair or replace compressor

6. Air Conditioner is Leaking Water

Possible causes	Determination Method (Air conditioner Status)	Troubleshooting
Drain pipe is blocked	Water leaks from indoor unit	Eliminate the blockage inside the drain pipe
Drain pipe is broken	Water leaks from drain pipe	Replace drain pipe
Wrapping is not tight	Water leaks from the pipe connection area of the indoor unit	Wrap it again and bundle it tightly

7. Abnormal Sound or Vibrations

Possible causes	Determination Method (Air conditioner Status)	Troubleshooting
When turning the unit on or off, panels and parts of the unit can expand and create noise.	Unit creates a the sound of "PAPA"	Normal phenomenon. The sound will cease after a few minutes when metal components cool off.
When turning the unit on or off, an sound caused by flow of refrigerant inside air conditioner	Water-running sound can be heard	Normal phenomenon. The sound will cease after a few minutes.
Check for foreign objects inside the indoor unit or there are parts touching inside the indoor unit	An abnormal sound is coming from the indoor unit	Remove any foreign objects or debris. Inspect fan blades, and adjust any parts positions of indoor unit. tighten screws and buffer vibration any connected parts
Short circuit inside the magnetic coil	While in heating mode, the four way valve has abnormal electromagnetic sound	Replace magnetic coil



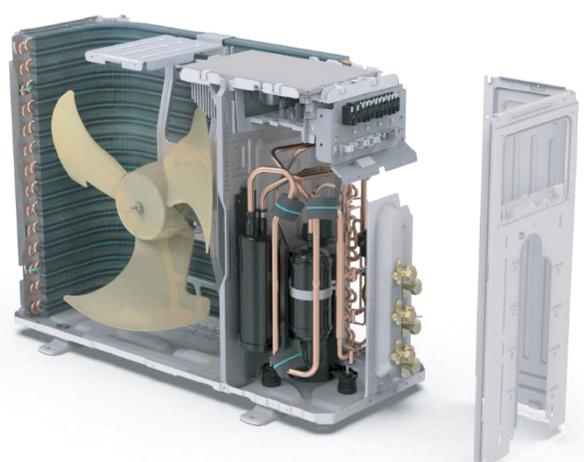
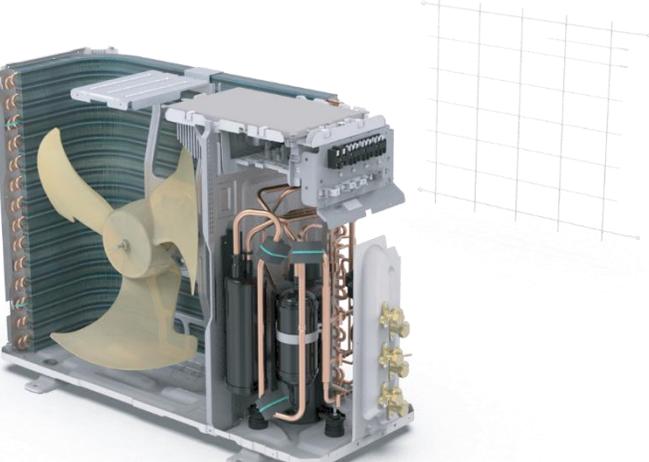
Abnormal shaking of the compressor	Outdoor unit makes abnormal sound	Adjust the support foot pads of the compressor. Tighten the bolts that secure the compressor to the chassis.
Abnormal sound from inside the compressor	Abnormal sound from inside the compressor	Check to see if too much refrigerant has been added, during installation or servicing, reduce the refrigerant to the proper amount. Too much refrigerant in the system can damage the compressor.

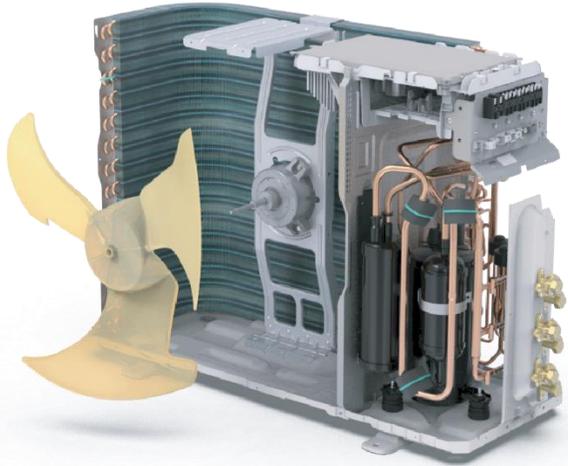
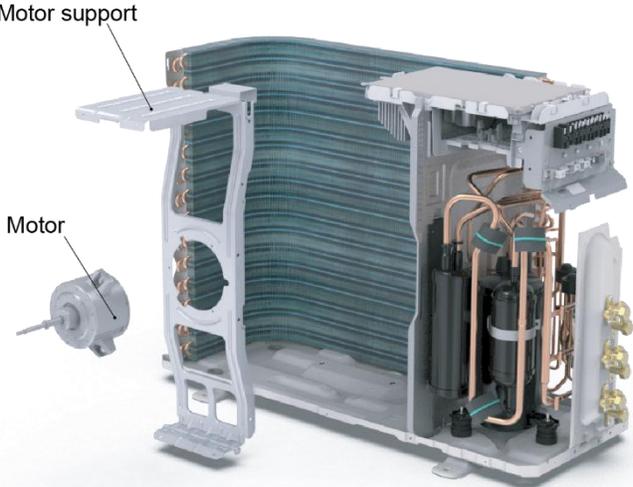
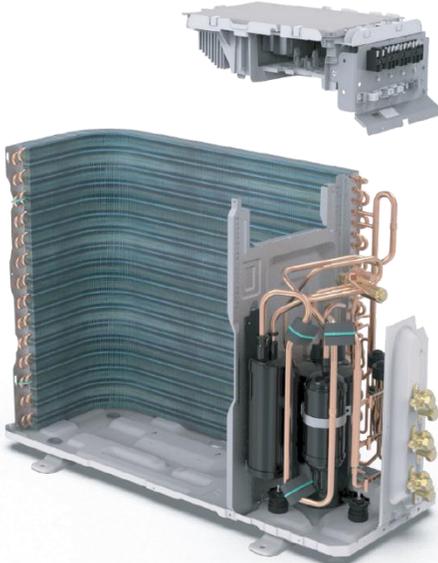


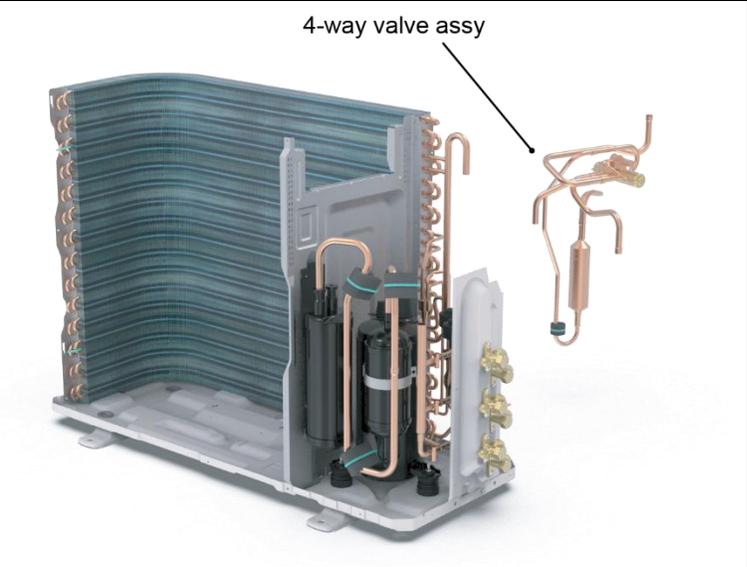
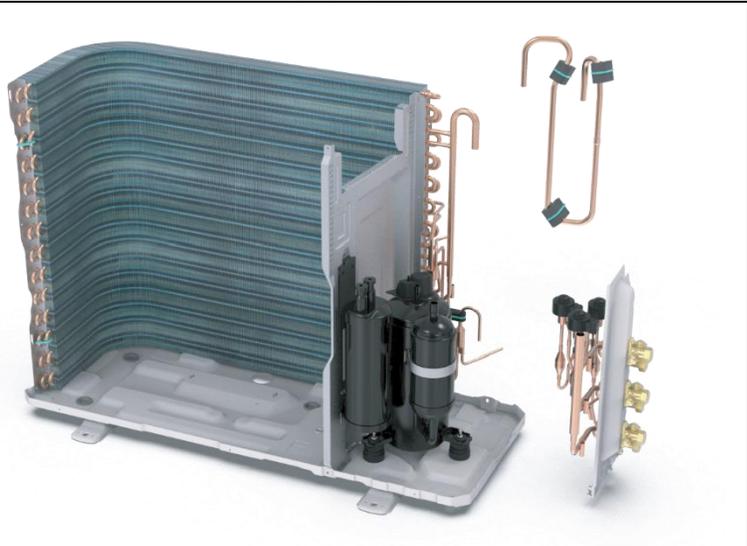
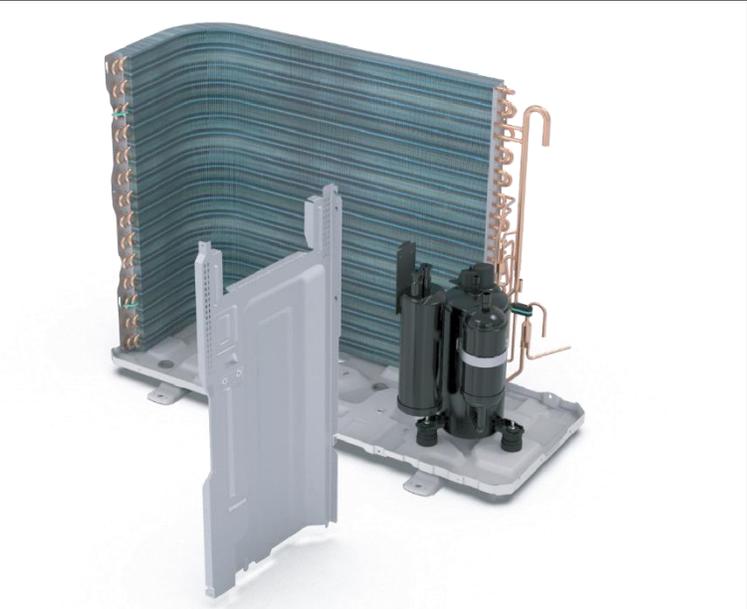
Disassembly Procedure

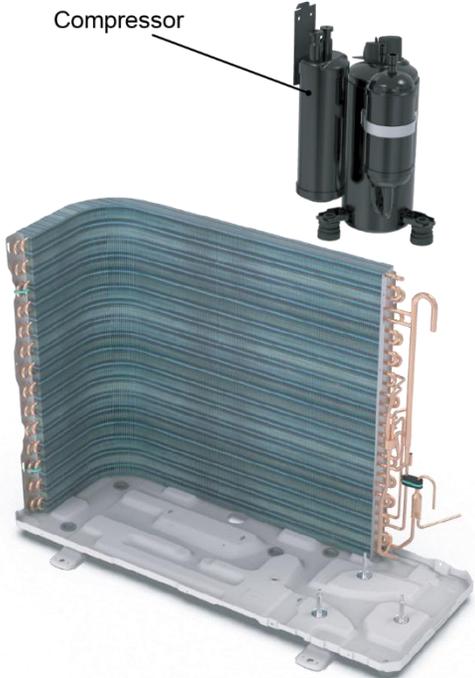
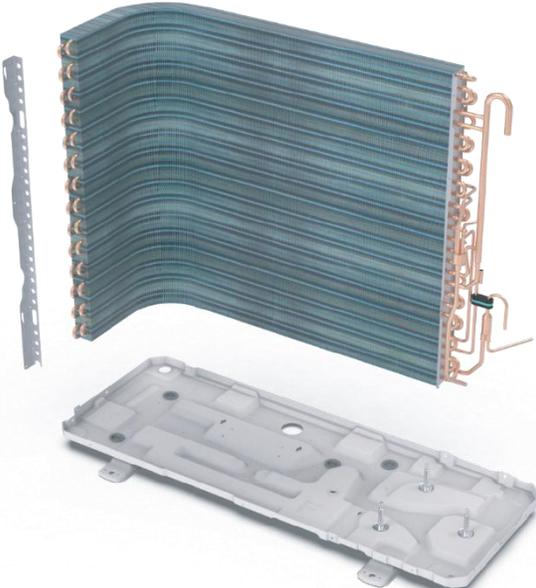
Step	Procedure	
1.	<p>Before disassembly Complete axonometric drawing.</p>	
2.	<p>Remove valve cover Remove the connection screw fixing the valve cover and then remove the valve cover.</p>	
3.	<p>Remove handle Remove the connection screws fixing the handle and the right side plate, and then remove the handle.</p>	

<p>4.</p>	<p>Remove top panel Remove the connection screws connecting the top panel and the front panel, and then remove the top panel.</p>	
<p>5.</p>	<p>Remove front grille Remove the connection screws connecting the front grille and the front panel,</p>	
<p>6.</p>	<p>Remove front panel Remove the screws connecting the front panel and then remove the front panel.</p>	

<p>7.</p> <p>Remove right side plate Remove the screws connecting the right side plate with the chassis and the valve support. Then remove the right side plate</p>		
<p>8.</p> <p>Remove rear grill Remove the screws connecting the rear grill and left side plate, and then remove the rear grill.</p>		
<p>9.</p> <p>Remove left side plate Remove the screws fixing the left side plate with the chassis and the condenser support, and then remove the left side plate.</p>		

<p>10.</p>	<p>Remove axial flow blade Remove the nut on the blade and then remove the axial flow blade.</p>	
<p>11.</p>	<p>Remove motor and motor support Remove the 4 tapping screws fixing the motor and disconnect the leading wire insert of the motor. Then remove the motor. Remove the 2 tapping screws fixing the motor support and chassis, and then lift the motor support to remove it.</p>	
<p>12.</p>	<p>Remove electric box assy Remove the screws fixing the electric box assy and the middle isolation sheet, loosen the wire bundle, unplug the wiring terminals, and then lift the electric box assy to remove it.</p>	

<p>13.</p> <p>Remove 4-way valve assy Unsolder the welding joint connecting the 4-way valve assy with the cut-off valve and the condenser connection pipe, and then remove the 4-way valve assy.</p>		 <p>4-way valve assy</p>
<p>14.</p> <p>Remove valve support sub-assy and expansion valve assy Remove the screw connecting the valve support and the chassis, and then remove the valve support assy. Unsolder the welding joint connecting the electronic expansion valve assy with the cut-off valve and the condenser connection</p>		
<p>15.</p> <p>Remove middle isolation sheet Remove the screws connecting the middle isolation sheet with the chassis assy and the condenser assy, and then remove the middle isolation sheet.</p>		

<p>16.</p> <p>Remove compressor Remove the 3 foot nuts fixing the compressor and then remove the compressor.</p>	
<p>17.</p> <p>Remove condenser assy Remove the screws fixing the condenser support and then remove the condenser support. Remove the screws connecting the condenser support and the chassis</p>	

Appendix:

Appendix 1: Reference Sheet of Celsius and Fahrenheit

Conversion formula for Fahrenheit degree and Celsius degree: $T_f = T_c \times 1.8 + 32$

Set temperature

Fahrenheit display temperature °F	Fahrenheit °F	Celsius °C	Fahrenheit display temperature °F	Fahrenheit °F	Celsius °C	Fahrenheit display temperature °F	Fahrenheit °F	Celsius °C
61	60.8	16	69/70	69.8	21	78/79	78.8	26
62/63	62.6	17	71/72	71.6	22	80/81	80.6	27
64/65	64.4	18	73/74	73.4	23	82/83	82.4	28
66/67	66.2	19	75/76	75.2	24	84/85	84.2	29
68	68	20	77	77	25	86	86	30

Ambient temperature

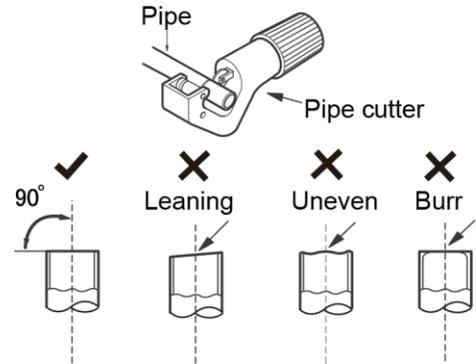
Fahrenheit display temperature °F	Fahrenheit °F	Celsius °C	Fahrenheit display temperature °F	Fahrenheit °F	Celsius °C	Fahrenheit display temperature °F	Fahrenheit °F	Celsius °C
32/33	32	0	55/56	55.4	13	79/80	78.8	26
34/35	33.8	1	57/58	57.2	14	81	80.6	27
36	35.6	2	59/60	59	15	82/83	82.4	28
37/38	37.4	3	61/62	60.8	16	84/85	84.2	29
39/40	39.2	4	63	62.6	17	86/87	86	30
41/42	41	5	64/65	64.4	18	88/89	87.8	31
43/44	42.8	6	66/67	66.2	19	90	89.6	32
45	44.6	7	68/69	68	20	91/92	91.4	33
46/47	46.4	8	70/71	69.8	21	93/94	93.2	34
48/49	48.2	9	72	71.6	22	95/96	95	35
50/51	50	10	73/74	73.4	23	97/98	96.8	36
52/53	51.8	11	75/76	75.2	24	99	98.6	37
54	53.6	12	77/78	77	25			

Appendix 2: Pipe Expanding Method

⚠ Note: Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

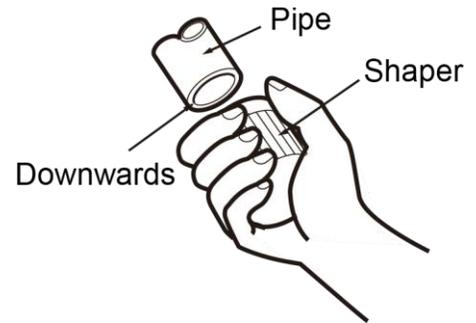
A. Cut the pipe

- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



B. Remove the burrs

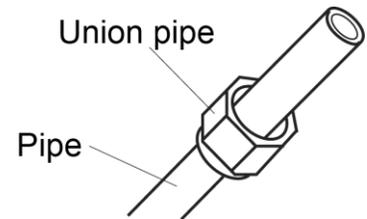
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



C. Put on suitable pipe insulation

D. Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.

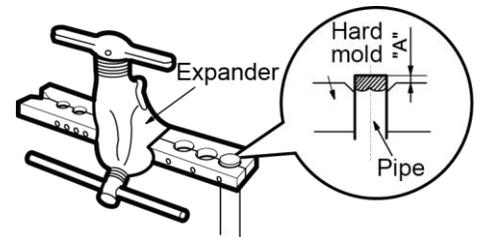


E. Expand the port

- Expand the port with expander.

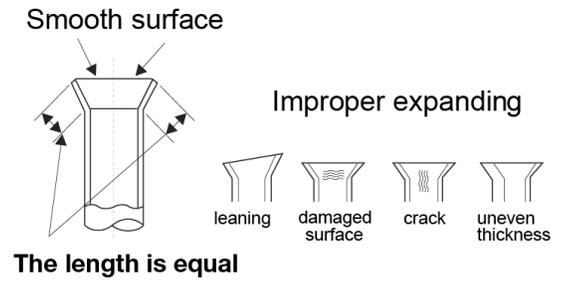
⚠ Note: "A" is different according to the diameter, please refer to the sheet below

Outer diameter(inch)	A(inch)	
	Max	Min
Φ1/4	2/39	1/36
Φ3/8	1/16	1/51
Φ1/2	1/14	1/51
Φ5/8	5/53	2/23



F. Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



Appendix 3: List of Resistance for Temperature Sensor Resistance Table of Ambient Temperature Sensor for Indoor and Outdoor (15K)

Temp. (°F)	Resistance (kΩ)						
-2.2	138.1	68	18.75	138.2	3.848	208.4	1.071
-0.4	128.6	69.8	17.93	140	3.711	210.2	1.039
1.4	121.6	71.6	17.14	141.8	3.579	212	1.009
3.2	115	73.4	16.39	143.6	3.454	213.8	0.98
5	108.7	75.2	15.68	145.4	3.333	215.6	0.952
6.8	102.9	77	15	147.2	3.217	217.4	0.925
8.6	97.4	78.8	14.36	149	3.105	219.2	0.898
10.4	92.22	80.6	13.74	150.8	2.998	221	0.873
12.2	87.35	82.4	13.16	152.6	2.896	222.8	0.848
14	82.75	84.2	12.6	154.4	2.797	224.6	0.825
15.8	78.43	86	12.07	156.2	2.702	226.4	0.802
17.6	74.35	87.8	11.57	158	2.611	228.2	0.779
19.4	70.5	89.6	11.09	159.8	2.523	230	0.758
21.2	66.88	91.4	10.63	161.6	2.439	231.8	0.737
23	63.46	93.2	10.2	163.4	2.358	233.6	0.717
24.8	60.23	95	9.779	165.2	2.28	235.4	0.697
26.6	57.18	96.8	9.382	167	2.206	237.2	0.678
28.4	54.31	98.6	9.003	168.8	2.133	239	0.66
30.2	51.59	100.4	8.642	170.6	2.064	240.8	0.642
32	49.02	102.2	8.297	172.4	1.997	242.6	0.625
33.8	46.6	104	7.967	174.2	1.933	244.4	0.608
35.6	44.31	105.8	7.653	176	1.871	246.2	0.592
37.4	42.14	107.6	7.352	177.8	1.811	248	0.577
39.2	40.09	109.4	7.065	179.6	1.754	249.8	0.561
41	38.15	111.2	6.791	181.4	1.699	251.6	0.547
42.8	36.32	113	6.529	183.2	1.645	253.4	0.532
44.6	34.58	114.8	6.278	185	1.594	255.2	0.519
46.4	32.94	116.6	6.038	186.8	1.544	257	0.505
48.2	31.38	118.4	5.809	188.6	1.497	258.8	0.492
50	29.9	120.2	5.589	190.4	1.451	260.6	0.48
51.8	28.51	122	5.379	192.2	1.408	262.4	0.467
53.6	27.18	123.8	5.197	194	1.363	264.2	0.456
55.4	25.92	125.6	4.986	195.8	1.322	266	0.444
57.2	24.73	127.4	4.802	197.6	1.282	267.8	0.433
59	23.6	129.2	4.625	199.4	1.244	269.6	0.422
60.8	22.53	131	4.456	201.2	1.207	271.4	0.412
62.6	21.51	132.8	4.294	203	1.171	273.2	0.401
64.4	20.54	134.6	4.139	204.8	1.136	275	0.391
66.2	19.63	136.4	3.99	206.6	1.103	276.8	0.382

Resistance Table of Tube Temperature Sensors for Indoor and Outdoor (20K)

Temp. (°F)	Resistance (kΩ)						
-2.2	181.4	68	25.01	138.2	5.13	208.4	1.427
-0.4	171.4	69.8	23.9	140	4.948	210.2	1.386
1.4	162.1	71.6	22.85	141.8	4.773	212	1.346
3.2	153.3	73.4	21.85	143.6	4.605	213.8	1.307
5	145	75.2	20.9	145.4	4.443	215.6	1.269
6.8	137.2	77	20	147.2	4.289	217.4	1.233
8.6	129.9	78.8	19.14	149	4.14	219.2	1.198
10.4	123	80.6	18.13	150.8	3.998	221	1.164
12.2	116.5	82.4	17.55	152.6	3.861	222.8	1.131
14	110.3	84.2	16.8	154.4	3.729	224.6	1.099
15.8	104.6	86	16.1	156.2	3.603	226.4	1.069
17.6	99.13	87.8	15.43	158	3.481	228.2	1.039
19.4	94	89.6	14.79	159.8	3.364	230	1.01
21.2	89.17	91.4	14.18	161.6	3.252	231.8	0.983
23	84.61	93.2	13.59	163.4	3.144	233.6	0.956
24.8	80.31	95	13.04	165.2	3.04	235.4	0.93
26.6	76.24	96.8	12.51	167	2.94	237.2	0.904
28.4	72.41	98.6	12	168.8	2.844	239	0.88
30.2	68.79	100.4	11.52	170.6	2.752	240.8	0.856
32	65.37	102.2	11.06	172.4	2.663	242.6	0.833
33.8	62.13	104	10.62	174.2	2.577	244.4	0.811
35.6	59.08	105.8	10.2	176	2.495	246.2	0.77
37.4	56.19	107.6	9.803	177.8	2.415	248	0.769
39.2	53.46	109.4	9.42	179.6	2.339	249.8	0.746
41	50.87	111.2	9.054	181.4	2.265	251.6	0.729
42.8	48.42	113	8.705	183.2	2.194	253.4	0.71
44.6	46.11	114.8	8.37	185	2.125	255.2	0.692
46.4	43.92	116.6	8.051	186.8	2.059	257	0.674
48.2	41.84	118.4	7.745	188.6	1.996	258.8	0.658
50	39.87	120.2	7.453	190.4	1.934	260.6	0.64
51.8	38.01	122	7.173	192.2	1.875	262.4	0.623
53.6	36.24	123.8	6.905	194	1.818	264.2	0.607
55.4	34.57	125.6	6.648	195.8	1.736	266	0.592
57.2	32.98	127.4	6.403	197.6	1.71	267.8	0.577
59	31.47	129.2	6.167	199.4	1.658	269.6	0.563
60.8	30.04	131	5.942	201.2	1.609	271.4	0.549
62.6	28.68	132.8	5.726	203	1.561	273.2	0.535
64.4	27.39	134.6	5.519	204.8	1.515	275	0.521
66.2	26.17	136.4	5.32	206.6	1.47	276.8	0.509



Resistance Table of Discharge Temperature Sensor for Outdoor (50K)

Temp. (°F)	Resistance (kΩ)						
-20.2	853.5	50	98	120.2	18.34	190.4	4.754
-18.4	799.8	51.8	93.42	122	17.65	192.2	4.609
-16.6	750	53.6	89.07	123.8	16.99	194	4.469
-14.8	703.8	55.4	84.95	125.6	16.36	195.8	4.334
-13	660.8	57.2	81.05	127.4	15.75	197.6	4.204
-11.2	620.8	59	77.35	129.2	15.17	199.4	4.079
-9.4	580.6	60.8	73.83	131	14.62	201.2	3.958
-7.6	548.9	62.6	70.5	132.8	14.09	203	3.841
-5.8	516.6	64.4	67.34	134.6	13.58	204.8	3.728
-4	486.5	66.2	64.33	136.4	13.09	206.6	3.619
-2.2	458.3	68	61.48	138.2	12.62	208.4	3.514
-0.4	432	69.8	58.77	140	12.17	210.2	3.413
1.4	407.4	71.6	56.19	141.8	11.74	212	3.315
3.2	384.5	73.4	53.74	143.6	11.32	213.8	3.22
5	362.9	75.2	51.41	145.4	10.93	215.6	3.129
6.8	342.8	77	49.19	147.2	10.54	217.4	3.04
8.6	323.9	78.8	47.08	149	10.18	219.2	2.955
10.4	306.2	80.6	45.07	150.8	9.827	221	2.872
12.2	289.6	82.4	43.16	152.6	9.489	222.8	2.792
14	274	84.2	41.34	154.4	9.165	224.6	2.715
15.8	259.3	86	39.61	156.2	8.854	226.4	2.64
17.6	245.6	87.8	37.96	158	8.555	228.2	2.568
19.4	232.6	89.6	36.38	159.8	8.268	230	2.498
21.2	220.5	91.4	34.88	161.6	7.991	231.8	2.431
23	209	93.2	33.45	163.4	7.726	233.6	2.365
24.8	198.3	95	32.09	165.2	7.47	235.4	2.302
26.6	199.1	96.8	30.79	167	7.224	237.2	2.241
28.4	178.5	98.6	29.54	168.8	6.998	239	2.182
30.2	169.5	100.4	28.36	170.6	6.761	240.8	2.124
32	161	102.2	27.23	172.4	6.542	242.6	2.069
33.8	153	104	26.15	174.2	6.331	244.4	2.015
35.6	145.4	105.8	25.11	176	6.129	246.2	1.963
37.4	138.3	107.6	24.13	177.8	5.933	248	1.912
39.2	131.5	109.4	23.19	179.6	5.746	249.8	1.863
41	125.1	111.2	22.29	181.4	5.565	251.6	1.816
42.8	119.1	113	21.43	183.2	5.39	253.4	1.77
44.6	113.4	114.8	20.6	185	5.222	255.2	1.725
46.4	108	116.6	19.81	186.8	5.06	257	1.682
48.2	102.8	118.4	19.06	188.6	4.904	258.8	1.64





USER NOTES

Please record any questions or problems you have experienced as a unit history:

No.	Date	Company Name, Technician Name, Phone & HVAC License #	Job Not Performed by Technician	Technician Checklist Completed Fully?

SERVICE / MAINTENANCE NOTES

No.	Date	Type of Service / Maintenance	Company Name, Technician Name, Phone & HVAC License #





YMGI is dedicated to designing, manufacturing and distributing the highest quality, energy saving and environmentally friendly air conditioner and heat pump products, while providing the best service and support to all of our customers. Our mission is to help build a sustainable, efficient and green world.

YMGI Symphony-Ductless & Ducted Heat Pump & Heat Recovery:

- **Symphony SOLAR DC Inverter**
 (56) Single PV, (79) Single PH 12-18K Btu/h
 (86) Single Zone All DC 09-24K Btu/h
 (55) Multi Zone Solar VRF 3, 4, 8, 16, and 24 Ton.
- **Symphony SOLO DC Inverter**
 (57)2,3 Single Zone 16 SEER, 09-36K Btu/h
 (58)4, (78)1-Single Zone 18-23 SEER, 09-36K Btu/h
- **Symphony CHOIR DC Inverter**
 (46)2 DC Inverter Multiple Zone 15 SEER, 2x09K and 2x12K Btu/h
 (59)2S-DC Inverter Multiple Zone 16 SEER 6x09K to 9x09K Btu/h
 (59)4-DC Inverter Multiple Zone 21 SEER 2x09K to 5x12K Btu/h
- **Symphony VRF - DC Inverter HP, Heat Recovery, and Solar. Up to 64 zones.**
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