DUCTLESS MINI SPLIT SYSTEM AIR CONDITIONER / HEAT PUMP

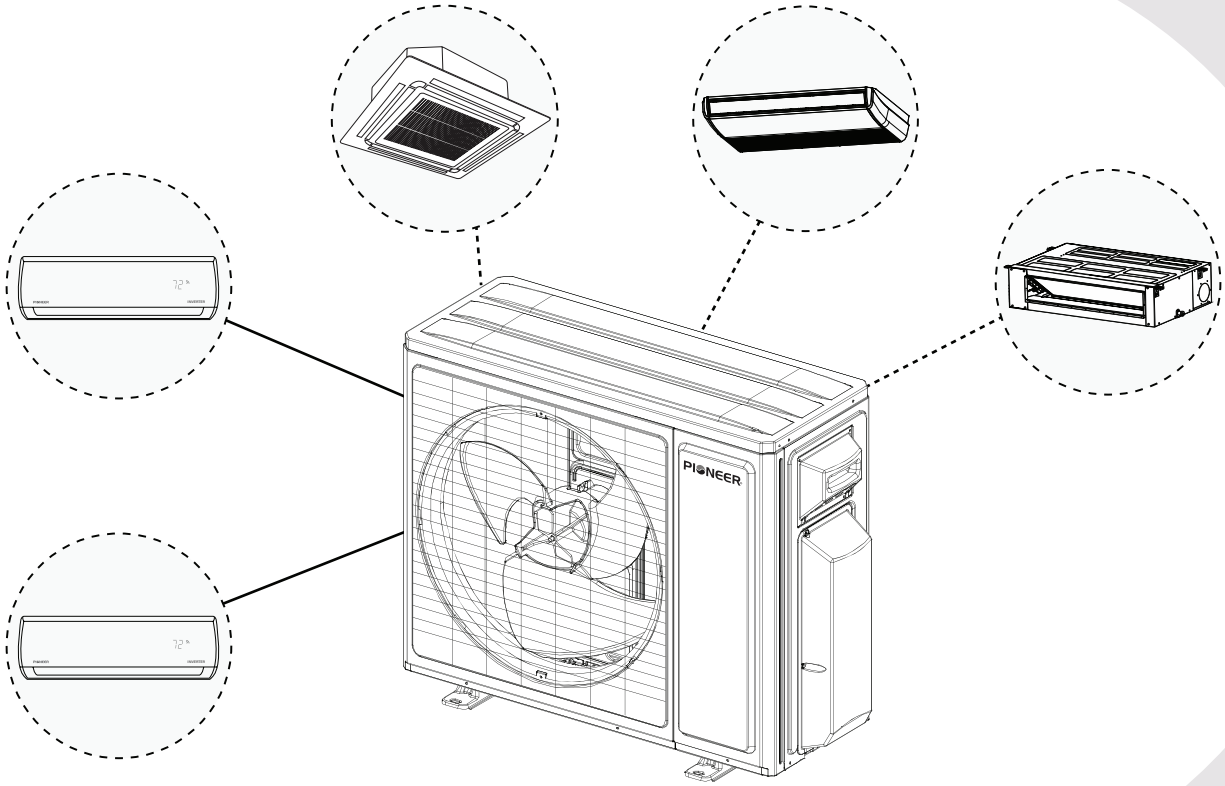
PIONEER®

YN-L Multi-Zone Series

For 2/3/4/5-Circuit Systems

Quantum Ultra - WT/RT/UT/CT/FT Indoor and YN Outdoor

For Use with Designated Pioneer® Free-Match Air Handlers, as an Add-On to Primary Manual



Addendum to Standard Manual (for Multi-Zone)

IMPORTANT NOTICE:
Please read this manual carefully before installing or operating your new air conditioning system. Be sure to save this manual for future reference.

REV250407

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Regarding the Scope of this Technical Document

Note Before Installation:
This addendum is intended to supplement the standard **User and Installation Manual** included with each indoor unit when it is used as part of a **Multi-Zone Split System**. While the overall installation process closely resembles that of a single-zone system, multi-zone setups involve additional or repeated steps. Please refer to the information in this document for the specific process used when completing a multi-zone installation, and be sure to read both manuals in full.

Note Regarding Compatibility:
To ensure proper performance, safety, and warranty coverage, this outdoor section must only be used with designated **Pioneer®** brand indoor units that are explicitly approved for use within this product line. While only specific model combinations are currently supported, additional compatible indoor unit types may be introduced in future product releases.

Always consult the latest official **Pioneer®** multi-zone system compatibility chart or relevant technical documentation before configuring or installing a multi-split system.

Compatibility Information

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Allowable Zone Combinations for Multi-Circuit Systems

Outdoor Unit Model Number	YN020GLSI24M2G	YN030GLSI24M3G	YN040GLSI24M4G	YN050GLSI24M5G
Number of Available Zones	**Two (2)**	**Three (3)**	**Four (4)**	**Five (5)**
Two Zones Utilized *(Allowable Combintions in kBTU)*	9 + 9 12 + 9 12 + 12 18 + 9	9 + 9 18 + 9 12 + 12 24 + 12 12 + 9 24 + 9 18 + 12 18 + 18	9 + 9 18 + 9 12 + 12 24 + 12 24 + 18 12 + 9 24 + 9 18 + 12 18 + 18 24 + 24	9 + 9 18 + 9 12 + 12 24 + 12 24 + 18 12 + 9 24 + 9 18 + 12 18 + 18 24 + 24
Three Zones Utilized *(Allowable Combintions in kBTU)*		9 + 9 + 9 12 + 9 + 9 18 + 9 + 9 12 + 12 + 9 18 + 12 + 9 12 + 12 + 12	9 + 9 + 9 9 + 9 + 18 9 + 12 + 18 12 + 12 + 12 12 + 12 + 24 9 + 9 + 12 9 + 12 + 12 9 + 12 + 24 12 + 12 + 18 12 + 18 + 18	9 + 9 + 9 18 + 9 + 9 12 + 9 + 9 18 + 12 + 9 18 + 18 + 9 24 + 24 + 9 18 + 12 + 12 18 + 18 + 12 24 + 24 + 12 24 + 18 + 18 12 + 9 + 9 12 + 12 + 9 24 + 12 + 9 24 + 18 + 9 12 + 12 + 12 24 + 12 + 12 24 + 18 + 12 18 + 18 + 18
Four Zones Utilized *(Allowable Combintions in kBTU)*			9 + 9 + 9 + 9 12 + 9 + 9 + 9 12 + 12 + 9 + 9 12 + 12 + 12 +9 12 + 12 + 12 + 12 18 + 9 + 9 + 9 18 + 12 + 9 + 9	9 + 9 + 9 + 9 12 + 9 + 9 + 9 18 + 9 + 9 + 9 12 + 12 + 9 + 9 18 + 12 + 9 + 9 12 + 12 + 12 + 9 18 + 12 + 12 + 9 24 + 12 + 9 + 9 24 + 18 + 12 + 9 12 + 12 + 12 + 12 18 + 12 + 12 + 12 24 + 12 + 12 + 12 18 + 18 + 12 + 12
Five Zones Utilized *(Allowable Combintions in kBTU)*				9 + 9 + 9 + 9 + 9 12 + 9 + 9 + 9 + 9 18 + 9 + 9 + 9 + 9 24 + 9 + 9 + 9 + 9 12 + 12 + 9 + 9 + 9 18 + 12 + 9 + 9 + 9 24 + 12 + 9 + 9 + 9 18 + 18 + 9 + 9 + 9 12 + 12 + 12 + 9 + 9 18 + 12 + 12 + 9 + 9 12 + 12 + 12 + 12 + 9 18 + 12 + 12 + 12 + 9 12 + 12 + 12 + 12 + 12

- *Different models of all available matching indoor units can be combined together in any order to create a multi zone split system, up to a quantity of the number of available circuits.*
- *Not all available circuits need to be utilized with an attached indoor unit. 66% or higher of the total capacity utilization is recommended.*
- *Every indoor unit attached to a multi zone system will operate at a random, self-regulated capacity, based on the actual demand it measures from the zone it is serving (Between 30% to 100% of its rated capacity) or turn OFF as needed.*
- *Outdoor units will also self-regulate their total output capacity, based on the total demand it reads from all of the simultaneously running indoor units at any given moment, up to its maximum rating capacity.*
- *With multi-split systems, the total demand from the outdoor unit, will seldomly exceed 75% of the total available capacity of the combined indoor unit group due to load fluctuations of each indoor unit.*
- *Therefore, total attached indoor unit capacity can be selected up to 133% of the supporting outdoor unit's rated capacity.*
- *Although very seldom, if the total demand from the combined group of indoor units exceeds the rated capacity of the outdoor unit, the capacity of each indoor unit will be attenuated accordingly.*
- *For high demand applications, max loading limits may need to be reduced up to 20% to avoid underperformance risks during some*
- *extreme conditions.*
- *The BTU order of attached indoor units has no effect on performance.*

Considerations for A2L Refrigerants

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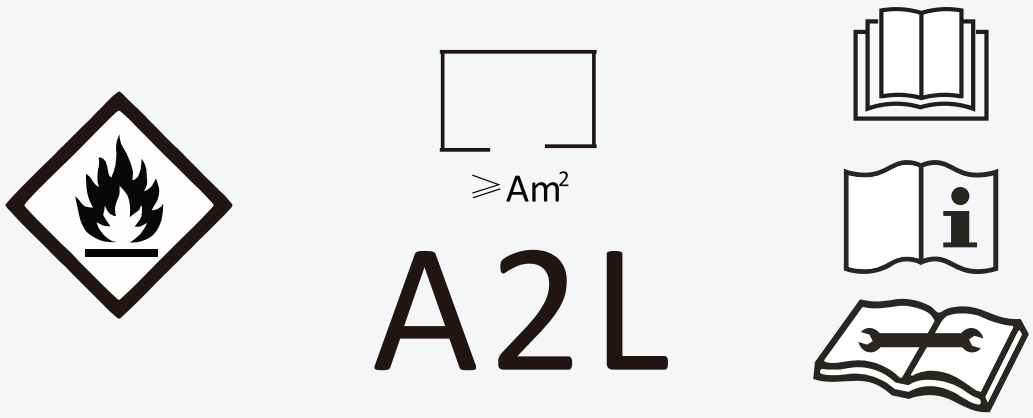

Safety Information for A2L Refrigerants

Because your system contains R-454B refrigerant, the following notices should be read and followed. It must be noted that venting any type of refrigerant into the atmosphere is always illegal and is punishable under federal and local regulations. Always read and obey all applicable local EPA laws.

- Refer to this manual for the required installation space dimensions, including the minimum clearance distances from adjacent structures.
- The appliance must be installed, operated, and stored in a room with a floor area of at least the minimum allowed (**see Page 12**).
- The length of the refrigerant piping should be kept to a minimum.
- The refrigerant piping must be protected from physical damage and should not be installed in an unventilated space if the area of the space is smaller than the minimum.
- Installation must comply with all applicable national refrigerant regulations.
- All mechanical connections must remain accessible for maintenance.
- Follow the instructions in this manual for proper handling, installation, cleaning, maintenance, and disposal of the refrigerant.
- Ensure that all ventilation openings remain unobstructed.

Servicing must be performed only in accordance with the manufacturer's recommendations.

The appliance must be stored in a well-ventilated area with a room size that meets the minimum requirements specified for operation.

The appliance must be stored in a room free of continuously operating open flames (e.g., an active gas appliance) and ignition sources (e.g., an operating electric heater).

Any individual working on a refrigerant circuit must hold a valid, up-to-date certification from an industry-accredited assessment authority, verifying their competence in handling refrigerants per the recognized assessment specifications of the relevant industrial sector. Service operations must be performed strictly in accordance with the manufacturer's recommendations. Maintenance and repair tasks requiring assistance from additional qualified personnel must be conducted under the supervision of a certified professional competent in handling flammable refrigerants.

Considerations for A2L Refrigerants 3

Servicing Information for A2L Refrigerants

- The appliance must be stored in a manner that prevents mechanical damage.
- Any work procedure affecting safety measures must be carried out exclusively by competent personnel.

⚠ Warning

- Do not attempt to accelerate the defrosting process or remove frost manually.
- Follow the manufacturer's recommended procedures.
- The appliance must be stored in a room free of continuously operating ignition sources (e.g., open flames, an active gas appliance, or an operating electric heater).
- Do not pierce or incinerate the appliance or its components.
- Be aware that refrigerants may be odorless.

- **Area Inspection:** Before servicing systems containing flammable refrigerants, safety checks must be performed to minimize the risk of ignition. When repairing the refrigeration system, all following precautions must be observed before beginning any work.

- **Work Procedure:** All work must be conducted under a controlled process to minimize the risk of flammable gas or vapor being present during servicing.

- **General Work Area:**
  - All maintenance personnel and individuals in the vicinity must be informed about the nature of the work being performed.
  - Avoid working in confined spaces whenever possible.
  - The work area must be sectioned off to prevent unauthorized access.

- **Area Ventilation:** Ensure the area is free from flammable materials and that conditions are controlled to maintain a safe working environment

- **Checking for Refrigerant Presence:**
  - The work area must be monitored for refrigerant leaks using an appropriate refrigerant detector before and during servicing.
  - Ensure the leak detection equipment used is suitable for flammable refrigerants (i.e., non-sparking, adequately sealed, or intrinsically safe).

- **Presence of Fire Extinguisher:** If any hot work is to be performed on the refrigeration equipment or its associated components, appropriate fire extinguishing equipment must be readily available. A dry powder or CO_2 fire extinguisher should be positioned adjacent to the charging area.

- **Elimination of Ignition Sources:**
  - Any work involving the exposure of refrigeration system piping must be conducted without the use of ignition sources that could pose a fire or explosion risk.
  - All potential ignition sources, including smoking, must be kept at a safe distance from the installation, repair, removal, and disposal areas, where refrigerant may be unintentionally released into the surrounding space.
  - Before commencing work, the area must be inspected to ensure that no flammable hazards or ignition risks are present.
  - "No Smoking" signs must be clearly displayed in the work area.

Considerations for A2L Refrigerants 3

- **Ventilated Area:**
  - Ensure that work is conducted either in an open area or in a space with adequate ventilation before breaking into the system or performing any heat-producing tasks.
  - Ventilation must be maintained throughout the duration of the work.
  - The ventilation system should effectively disperse any released refrigerant and, if possible, direct it safely to an external atmosphere.

- **Inspection of Refrigeration Equipment:**
  - When replacing electrical components, ensure that they meet the correct specifications and are suitable for their intended purpose.
  - Always adhere to the manufacturer's maintenance and service guidelines.
  - If unsure, consult the manufacturer's technical support department for guidance.

- **Checks for Installations Using Flammable Refrigerants:** The following inspections must be performed for systems utilizing flammable refrigerants:
  - Ensure that the refrigerant charge size complies with the minimum room size requirements where refrigerant-containing components are installed.
  - Verify that ventilation equipment and exhaust outlets are functioning properly and are free from obstructions.
  - If an indirect refrigeration circuit is used, inspect the secondary circuit for any presence of refrigerant.
  - Confirm that all equipment markings remain visible and legible. Any illegible markings or signs must be replaced or corrected.

Ensure that refrigeration piping and components are installed in locations where they are not exposed to substances that could cause corrosion. If exposure is unavoidable, verify that the components are either made from corrosion-resistant materials or are adequately protected against corrosion.

- **Inspection of Electrical Devices:** Repair and maintenance of electrical components must include initial safety checks and a thorough inspection of components. If a fault is detected that could compromise safety, the electrical supply must not be connected to the circuit until the issue is fully resolved.

  - If the fault cannot be corrected immediately but continued operation is necessary, a temporary solution may be implemented, provided it is safe and effective.
  - Any temporary measures must be reported to the equipment owner to ensure all relevant parties are informed.

- **Initial Safety Checks:**
  - Ensure that capacitors are fully discharged in a controlled manner to prevent sparking.
  - Verify that no live electrical components or exposed wiring are present during system charging, refrigerant recovery, or purging.
  - Confirm that earth bonding continuity is maintained.

- **Repairs to Sealed Components:** Sealed electrical components must be replaced rather than repaired.

- **Repairs to Intrinsically Safe Components:** Intrinsically safe components must be replaced and not repaired.

Considerations for A2L Refrigerants 3

- **Cabling:** Ensure that cabling is not exposed to wear, corrosion, excessive pressure, vibration, sharp edges, or other adverse environmental factors. Consider the long-term effects of aging and continuous vibration from components such as compressors or fans.

- **Detection of Flammable Refrigerants:** Under no circumstances should potential sources of ignition be used for refrigerant leak detection. Halide torches or any other flame-based detection devices must not be used.

- **Leak Detection Methods:** The following methods are approved for detecting leaks in systems containing flammable refrigerants:

  - **Electronic Leak Detectors:** Must be used for detecting flammable refrigerants. However, they may require recalibration to maintain adequate sensitivity.
    - Detection equipment must be calibrated in a refrigerant-free area.
    - Ensure that the detector does not pose an ignition risk and is compatible with the refrigerant in use.
    - The detector must be set to a percentage of the refrigerant's Lower Flammability Limit (LFL) and calibrated to confirm that the appropriate gas concentration does not exceed 25% of the LFL.
  - **Leak Detection Fluids:** Suitable for most refrigerants but must not contain chlorine, as chlorine can react with the refrigerant and corrode copper piping.
  - **Safety Precautions:** If a leak is suspected, all open flames must be removed or extinguished. If a refrigerant leak requiring brazing is detected, all refrigerant must be fully recovered or isolated using shut-off valves to prevent accidental release.
  - **Oxygen-Free Nitrogen (OFN)** must be purged through the system before and during brazing.
- **Removal and Evacuation:** When accessing the refrigerant circuit for repairs or other procedures, industry-standard practices must be followed, with additional precautions for flammability:

1. **Recover the refrigerant** into approved recovery cylinders.
2. **Purge the circuit** using an inert gas (such as OFN).
3. **Evacuate** the system.
4. **Purge again** with inert gas.
5. **Open the circuit** by cutting or brazing.

- The system must be flushed with OFN to ensure safety. This process may need to be repeated multiple times.
- Do not use compressed air or oxygen for flushing.

- Flushing should be performed by:

1. **Breaking** the system vacuum with OFN.
2. **Filling** the system until the working pressure is reached.
3. **Venting** to the atmosphere.
4. **Pulling** the system down to vacuum.
5. **Repeating** the process until no refrigerant remains in the system.

- When the final OFN charge is introduced, the system must be vented to atmospheric pressure to allow for safe work. This step is critical before performing any brazing on pipework.

- Ensure the vacuum pump outlet is positioned away from ignition sources and that adequate ventilation is present.

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Decomissioning Information for A2L Refrigerants

- **Decommissioning:** Before starting decommissioning, the technician must be fully familiar with the equipment and its components. All refrigerant should be recovered safely as a standard best practice. Prior to decommissioning, an oil and refrigerant sample should be collected for analysis if reclaimed refrigerant is intended for reuse. Electrical power must be available before beginning the decommissioning process.

A. Familiarization: Understand the equipment, its operation, and the decommissioning process before beginning work.

B. Electrical Isolation: Disconnect the system from the electrical supply to prevent accidental activation during the procedure.

C. Pre-Procedure Safety Checks: Before proceeding, ensure the following:

1. Mechanical handling equipment is available if needed for refrigerant cylinder transport.
2. All required personal protective equipment (PPE) is present and correctly used.
3. A competent person supervises the entire refrigerant recovery process.
4. Recovery equipment and cylinders comply with all relevant safety and regulatory standards.

D. Pump Down the Refrigerant System: If possible, perform a pump-down procedure to remove refrigerant from the system.

E. Alternative Method if Vacuum is Not Possible: If a complete vacuum cannot be achieved, create a manifold to facilitate refrigerant removal from multiple points in the system.

F. Cylinder Positioning: Ensure the recovery cylinder is placed on a scale before starting the refrigerant recovery process.

G. Recovery Machine Operation: Start the recovery machine and follow the manufacturer's instructions for proper operation.

H. Cylinder Fill Limits: Do not exceed **80% of the cylinder's total volume** when filling with liquid refrigerant to allow for expansion.

I. Maximum Pressure Precautions: Do not exceed the **maximum working pressure** of the recovery cylinder at any time, even temporarily.

J. Finalizing the Recovery Process:

- Once the cylinders are correctly filled and the process is complete:
- Promptly remove the cylinders and recovery equipment from the site.
- Close all isolation valves on the equipment to prevent leaks.

K. Handling Recovered Refrigerant: Recovered refrigerant **must not be recharged** into another refrigeration system unless it has been properly cleaned and tested to ensure compliance with safety and performance standards.

- **Labeling:** The equipment must be labeled to indicate that it has been decommissioned and emptied of refrigerant. The label must include the date of decommissioning and the signature of the responsible technician. Ensure that the equipment retains labels indicating the presence of flammable refrigerant, even after decommissioning.

Considerations for A2L Refrigerants 3

Recovery Information for A2L Refrigerants

Recovery Procedure: When removing refrigerant from a system for servicing or decommissioning, the following best practices must be observed to ensure safety and compliance:

1. **Safe Refrigerant Removal:** All refrigerants must be **safely removed** from the system following proper handling procedures.
2. **Use of Appropriate Recovery Cylinders:** Only **approved refrigerant recovery cylinders** must be used.
   A. Ensure that a **sufficient number of cylinders** are available to accommodate the total refrigerant charge from the system.
   B. Each cylinder must be **designated and labeled** for the specific refrigerant being recovered (e.g., cylinders specifically designed for refrigerant recovery).
   C. Recovery cylinders must be equipped with a **pressure-relief valve** and **functioning shut-off valves**.
   D. Empty recovery cylinders should be **evacuated and, if possible, pre-cooled** before the recovery process begins.
3. **Recovery Equipment Requirements:** The recovery equipment must be:
   A. In **good working condition.**
   B. Accompanied by **manufacturer-provided operating instructions.**
   C. Suitable for recovering **all appropriate refrigerants**, including flammable refrigerants when applicable.
   D. A calibrated weighing scale must be available to monitor refrigerant recovery accurately.
   E. Hoses must be equipped with **leak-free disconnect couplings** and be in good condition.
   - Before using the recovery machine: Verify that it is in proper working order and has been properly maintained. Ensure that any associated electrical components are sealed to prevent ignition in case of a refrigerant leak.
   - If in doubt, consult the manufacturer.
4. **Handling Recovered Refrigerant:**
   - It is vital that:
     A. The recovered refrigerant must be returned to the refrigerant supplier in the correct recovery cylinder.
     B. A waste transfer note must be arranged for proper documentation and disposal.
     C. Do not mix refrigerants in recovery units or cylinders under any circumstances.
5. **Compressor and Oil Removal:**
   - If compressors or compressor oils need to be removed:
     A. Ensure that they have been **evacuated to an acceptable level** to eliminate any remaining flammable refrigerant within the lubricant.
     B. The evacuation process must be completed **before returning the compressor** to the supplier.
     C. Only **electric heating** should be used to accelerate the evacuation of refrigerant from the compressor body. **Open flames or ignition sources must not be used.**
   - When draining oil from a system, the process must be conducted safely and in accordance with best practices.

Considerations for A2L Refrigerants 3

WARNING

- Do not use any unauthorized methods to accelerate the defrosting process or for cleaning. Follow only the manufacturer's recommended procedures.
- The appliance must be stored in a room free of continuously operating ignition sources (e.g., open flames, an operating gas appliance, or an electric heater).
- Do not pierce or burn any part of the system.
- Be aware that refrigerants may be odorless.

AVERTISSEMENT

- Ne pas utiliser de moyens non recommandés par le fabricant pour accélérer le dégivrage ou nettoyer l'appareil.
- L'appareil doit être entreposé dans un endroit sans source d'allumage fonctionnant en continu (par exemple : flamme nue, appareil à gaz en marche, ou radiateur électrique en marche).
- Ne pas percer ni brûler l'appareil.
- Attention : les frigorigènes peuvent être inodores.

COMPLIANCE

- **Minimum Installation Requirements**: The minimum installation height and minimum room area (for both operation and storage) must be in accordance with the installation manual.
- **Risk of Fire – Auxiliary Devices:** Ignition source auxiliary devices must not be installed within the ductwork, except for auxiliary devices specifically listed for use with this appliance. Refer to the installation instructions.
- **Mounting Clearance**:The system must be mounted with the lowest moving parts at least 2.5m (8ft) above the floor or grade level.
- **Risk of Electric Shock:** Serious injury or death may occur. Disconnect all remote electric power supplies before performing any servicing.
- **Risk of Fire – Flammable Refrigerant**: Flammable refrigerant is used. Maintenance and repairs must only be performed by trained service personnel. Do not puncture refrigerant tubing.
- **Risk of Fire – Proper Disposal Required**: Dispose of the system in accordance with all applicable federal and local regulations.
- Flammable refrigerant is used; ensure proper handling and disposal.
- **Risk of Fire – Service Precautions:** Flammable refrigerant is used. Refer to the repair manual/owner's guide before attempting to service this product.
- **Risk of Fire – Compliance with Regulations:** Due to the use of flammable refrigerants, follow handling instructions carefully and ensure compliance with national regulations.

USAGE STATEMENT

- Before unloading and opening the container, use a flammable gas detector to check for potential leaks.
- No fire sources or smoking are allowed in the vicinity.
- Pipework must be protected from physical damage. For **FLAMMABLE REFRIGERANTS**, pipes must not be installed in an unventilated space if that space is smaller than the minimum requirements stated in **Annex GG**, except in the case of **A2L REFRIGERANTS**, where installed pipes must comply with **22.116**. If field charging is required, the impact of different pipe lengths on the **REFRIGERANT CHARGE** must be quantified.
- Compliance with all **national gas regulations** must be ensured.

- **Mechanical connections** made in accordance with **22.118** must remain accessible for maintenance purposes.
- Pipework, including piping material, routing, and installation, must be protected from physical damage during operation and servicing. It must comply with all national and local codes and standards, including:
  - ASHRAE 15
  - ASHRAE 15.2
  - IAPMO Uniform Mechanical Code
  - ICC International Mechanical Code
  - CSA B52
  - All field joints must be **accessible for inspection** before being covered or enclosed.

- After field piping installation for split systems, the field pipework must undergo:
  - Pressure testing with an inert gas.
  - Vacuum testing before refrigerant charging, following the required standards.

- The appliance must be stored in a way that prevents **mechanical damage**.
- Maintenance, service, and repair operations must only be carried out by **qualified personnel** according to **Annex HH**.
- Only competent persons should perform safety-critical procedures, including:
  - Breaking into the refrigerant circuit
  - Opening sealed components
  - Opening ventilated enclosures

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Preparation for Working on Systems With A2L Refrigerants


No Flammable Sources


Ventilation Necessary


Wear Protective Gear


Don't Use Electronics Near System

Refrigerant Leakage Detector

A handheld leakage detector can aid with tracing and isolating refrigerant leaks. As such, it is recommended to have one handy whenever working on the system.

Determining Installation Location

It is vital that the systems are installed in suitable locations based on the guidelines given below. For best results, follow all requirements given in this manual when determining placement of the equipment.

Installation Site Requirements:

1. **Ensure Proper Ventilation**
   - The installation site must be well-ventilated to allow safe operation and prevent refrigerant accumulation.
2. **Keep Away from Heat and Fire Hazards**
   - The installation and maintenance sites for air conditioners using Refrigerant R454-B must be free from open flames or heat sources.
   - Avoid locations near welding activities, smoking areas, drying ovens, or any heat source exceeding 1000°F, as these can create ignition risks.
3. **Implement Anti-Static Precautions**
   - Wear anti-static clothing and gloves to prevent static discharge when handling and installing the unit.
4. **Select an Accessible Installation Site**
   - The installation location must allow easy access for maintenance.
   - Indoor and outdoor units should not be surrounded by obstacles that restrict airflow.
   - Avoid areas close to heat sources or environments with flammable or explosive materials.
5. **Refrigerant Leak Emergency Actions**
   - If the indoor unit leaks refrigerant during installation, immediately shut off the outdoor unit valve.
   - All personnel must evacuate the area for at least 15 minutes until the refrigerant fully dissipates.
   - If the product is damaged, it must be transported to a maintenance station. Please note that on-site welding or refrigerant pipe repairs are strictly prohibited.
6. **Ensure Even Airflow**
   - Choose a location where the air inlet and outlet flow of indoor unit remains unobstructed and evenly distributed.
7. **Avoid Installing Near Sensitive Areas**
   - Do not install the indoor unit near:
     - Electrical devices or power outlets.
     - Kitchen cabinets, beds, sofas, or valuable items.
     - Areas where the airflow from the two sides of the unit could directly impact important objects.

Considerations for A2L Refrigerants 3

(If Applicable) Charging Protocol for A2L Refrigerants

Important Considerations:

1. The air conditioner must be installed and serviced by **qualified personnel**. Installation must comply with all instructions set forth herein as well as all local regulations.
2. Caution when handling combustible refrigerants – Improper or careless handling may cause **serious injury** or **damage to property**.
3. A **leak test** must be conducted after installation is completed to ensure system integrity.
4. Safety inspections are **mandatory** before performing maintenance or repairs on air conditioners using **combustible refrigerants to minimize fire risk**.
5. The system must be operated under **controlled conditions** to reduce the risk of **combustible gas or vapor hazards** during operation.
6. The **total weight of refrigerant charge** and **minimum room area requirements** for air conditioners must comply with the specifications outlined in **Tables GG.1 and GG.2**.

Maximum Refrigerant Charge and Required Minimum Floor Area: The maximum charge is determined by the following equations:

$m_1 = (6m^3) \times LFL$, $m_2 = (52m^3) \times LFL$, $m_3 = (260m^3) \times LFL$

Where LFL is the Lower Flammable Limit in kg/m^3. For R454-B refrigerant, LFL = 0.303 kg/m^3.

For Appliances with a Charge Amount $m_1 < M = m_2$:

The maximum refrigerant charge in a room must comply with: $M_{max} = 2.5 \times (LFL)^{5/4} \times h_0 \times A^{1/2}$

This value must not exceed: $M_{max} = SF \times LFL \times h_0 \times A$

(Refer to GG.3DV for specific factors and application.)

Minimum Floor Area Requirement: The **required minimum floor area A_{min}** for an appliance with a refrigerant charge M_c(kg) **must be calculated as follows**:

$A_{min} = [M_c/(2.5 \times LFL^{5/4} \times h_0]^2$

However, Amin **must not be less than**:

$A_{min} = M_c/(SF \times LFL \times h_0)$; SF=0.5

(Refer to GG.4DV for specific values/factors.)

Where Category = R454-B, LFL = 0.303 kg/m^3

Table GG.1 - Maximum Charge (kg)

h_0(m)	Floor Area (m^2)	Charge Limit (kg)
(Installed Height) 1.8 (6′0″)	4 (43 ft^2)	1.09 (38.5 oz)
	7 (75 ft^2)	1.91 (67.3 oz)
	10 (107 ft^2)	2.73 (96.2 oz)
	15 (161 ft^2)	3.92 (138.2 oz)
	20 (215 ft^2)	4.52 (159.6 oz)
	30 (322 ft^2)	5.54 (195.5 oz)
	50 (538 ft^2)	7.15 (252.3 oz)
(Installed Height) 2.5 (8′2″)	4 (43 ft^2)	1.52 (53.44 oz)
	7 (75 ft^2)	2.65 (93.5 oz)
	10 (107 ft^2)	3.79 (133.6 oz)
	15 (161 ft^2)	5.44 (191.9 oz)
	20 (215 ft^2)	6.28 (221.6 oz)
	30 (322 ft^2)	7.7 (271.4 oz)
	50 (538 ft^2)	9.94 (350.4 oz)
(Installed Height) 2.8 (9′2″)	4 (43 ft^2)	1.7 (59.8 oz)
	7 (75 ft^2)	2.97 (104.7 oz)
	10 (107 ft^2)	4.24 (149.6 oz)
	15 (161 ft^2)	6.09 (215 oz)
	20 (215 ft^2)	7.04 (248.2 oz)
	30 (322 ft^2)	8.62 (304 oz)
	50 (538 ft^2)	11.12 (392.5 oz)

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Where Category = R454-B, LFL = 0.303 kg/m^3

Table GG.2 - Minimum Room Area (m²)

h_0(m)	Charge Limit (kg)	Min. Room Area (m2)
(Installed Height)	0.8 (28.2 oz)	2.93 (32 ft²)
	0.95 (33.5 oz)	3.48 (38 ft²)
	1.2 (42.3 oz)	4.4 (48 ft²)
1.8 (6′0″)	1.7 (60.0 oz)	6.23 (68 ft²)
	2.2 (77.6 oz)	8.07 (88 ft²)
	2.8 (98.8 oz)	10.27 (111 ft²)
	3.4 (119.9 oz)	12.47 (135 ft²)
	0.8 (28.2 oz)	2.11 (23 ft²)
	0.95 (33.5 oz)	2.51 (27 ft²)
	1.2 (42.3 oz)	3.17 (35 ft²)
2.5 (8′2″)	1.7 (60.0 oz)	4.49 (49 ft²)
	2.2 (77.6 oz)	5.81 (63 ft²)
	2.8 (98.8 oz)	7.39 (80 ft²)
	3.4 (119.9 oz)	8.98 (97 ft²)
	0.8 (28.2 oz)	1.89 (21 ft²)
	0.95 (33.5 oz)	2.24 (25 ft²)
	1.2 (42.3 oz)	2.83 (31 ft²)
2.8 (9′2″)	1.7 (60.0 oz)	4.01 (44 ft²)
	2.2 (77.6 oz)	5.19 (56 ft²)
	2.8 (98.8 oz)	6.6 (72 ft²)
	3.4 (119.9 oz)	8.02 (87 ft²)

The standard factory refrigerant charge amount as well as the maximum allowable charge are as follows:

Model (BTU)	R454-B Refrigerant (Standard Charge)	R454-B Refrigerant (Maximum Charge)
2-Zone (18K)	1700 g / 3.75 lbs	1950 g / 4.29 lbs
3-Zone (27K)	2200 g / 4.85 lbs	2575 g / 5.67 lbs
4-Zone (36K)	2800 g / 6.17 lbs	3300 g / 7.27 lbs
5-Zone (42K)	3400 g / 7.5 lbs	3925 g / 8.65 lbs

Table GG.3DV - Maximum Charge (g) [lbs]

When connected to a multi-zone outdoor unit, the calculated minimum allowable room area for an individual indoor unit to be installed in, for any capacities, is as follows:

Model (BTU)	Minimum Allowable Room Area (Assumes 25 ft lineset and 6 ft install height)
YN020GLSI24M2G	6.33 m² **(68 ft²)**
YN030GLSI24M3G	8.07 m² **(88 ft²)**
YN040GLSI24M4G	10.27 m² **(111 ft²)**
YN050GLSI24M5G	12.47 m² **(135 ft²)**

Table GG.4DV - Minimum Room Area (m²)

ⓘ Determining Refrigerant Amount

Use the above figures when charging the system from empty. The proceeding pages will also inform the reader in determining the additional refrigerant charging amounts for adjusting the factory charge when using non-standard piping length.

Suggested Tools:

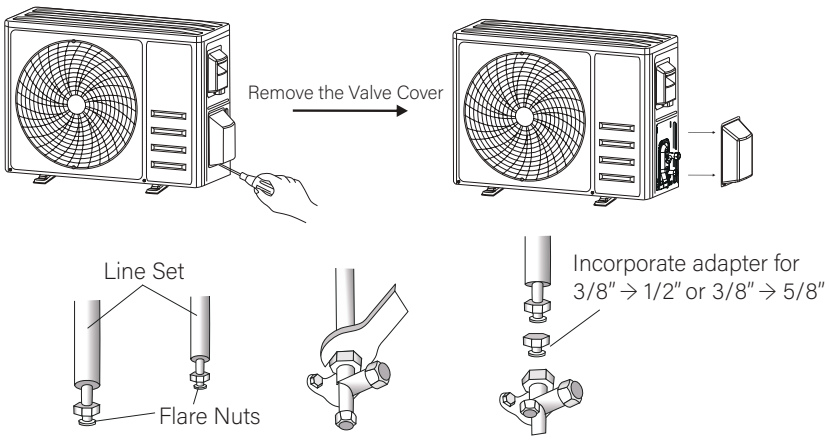
Tool	Illustration	Tool	Illustration	Tool	Illustration
Standard Wrench		Pipe Cutter		Vacuum Pump	
Adjustable/ Crescent Wrench		Screw Drivers (Phillips & Flathead)		Safety Glasses	
Torque Wrench		Manifold Gauge		Work Gloves	
Hex Keys or Allen Wrenches		Level		Refrigerant Scale	
Drill & Drill Bits		Flaring Tool		Micron Gauge	
Hole Saw		Clamp-On Amp Meter		Leak Detector	

Outdoor Section Installation

4

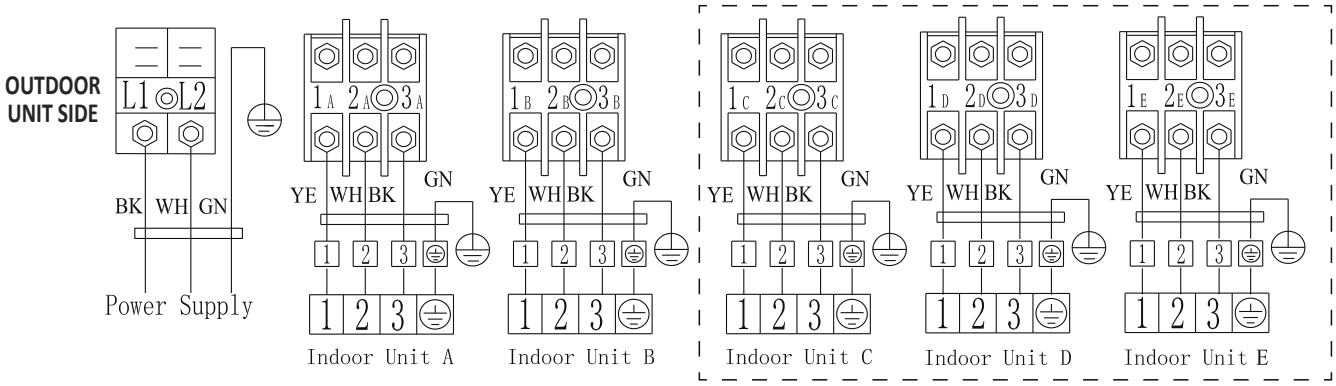
Connecting Refrigerant Piping for Multi-Circuit Condensers

Note Prior to Installation:
The process for connecting the copper refrigerant lines for indoor and outdoor are given in the full installation manual. Repeat the process for connection and leak-checking according to the amount of zones to be installed. All pipe sets use a 1/4″ diameter size for the liquid (smaller) side, but the gas (bigger) line may require the usage of adapters to convert the 3/8″ size to 1/2″ or 5/8″. Use the included adapters according to the zone combination to be installed, and refer to the installation manual for proper torquing values.



Signal Cable Wiring Diagram for Multi-Circuit Condensers

Note Prior to Installation:
The connection cables must be plugged to the corresponding terminals as shown below. Terminal A on the outdoor unit must be connected with Terminal A on the indoor unit, B to B, and so on.



⚠ CAUTION

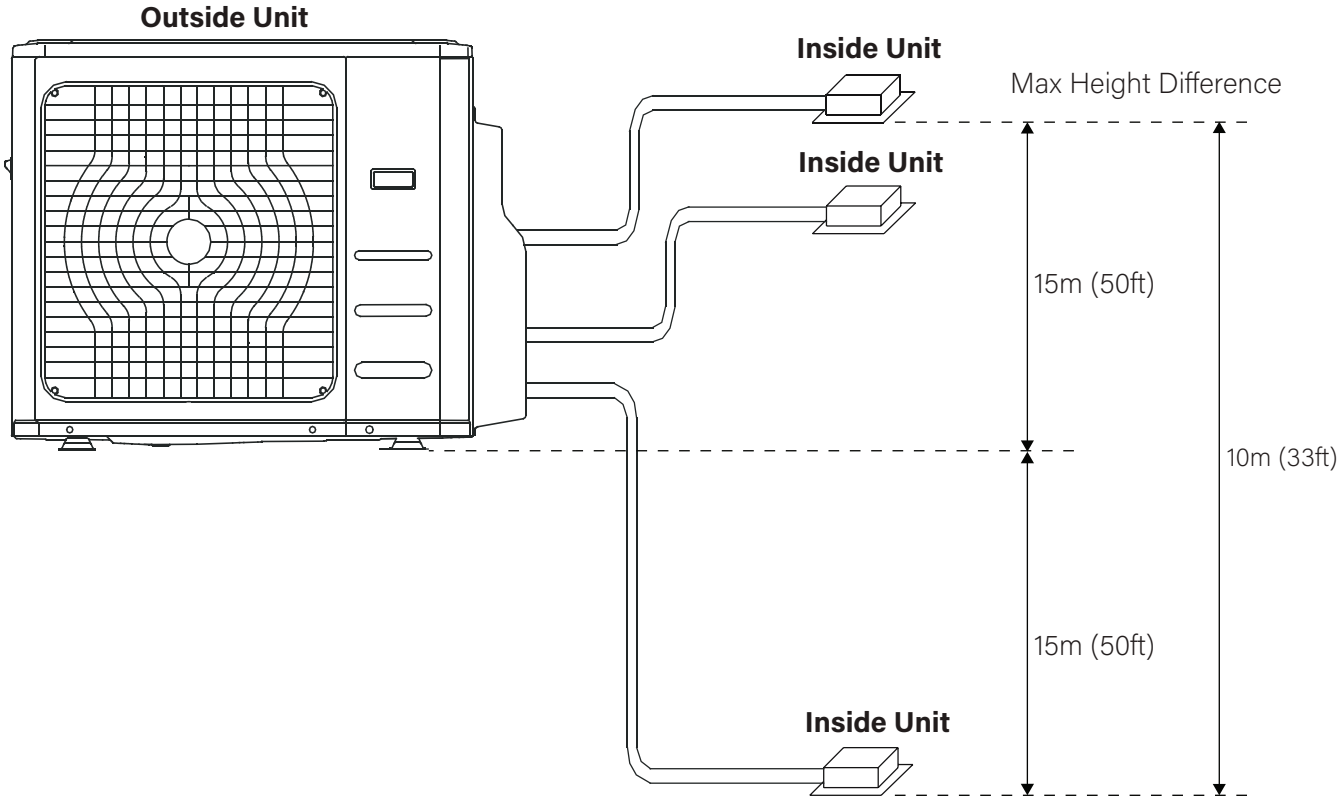
CROSS-WIRING IS A VERY EASY MISTAKE TO MAKE. ALWAYS DOUBLE CHECK THAT THE LINE GOING FROM A GIVEN TERMINAL BLOCK IS CORRESPONDING TO THE CORRECT ONE INDOOR.

Outdoor Section Installation

4

Allowable Connected Piping Length / Elevation Differences

Note Prior to Installation:
When installing multiple indoor units to work with a single outdoor unit, ensure that the length of the refrigerant pipe and the drop height between the indoor and outdoor units meet the requirements illustrated in the following diagram:



Unit Type	2-Zone	3-Zone	4-Zone	5-Zone
Max. combined length for all rooms (total attached piping)	132 ft (40m)	200 ft (60m)	265 ft (80m)	300 ft (90m)
Max. length for one indoor unit (longest zone length)	82 ft (25m)	100 ft (30m)	100 ft (30m)	100 ft (30m)
Max. elevation difference between indoor/outdoor unit	50 ft (15m)	50 ft (15m)	50 ft (15m)	50 ft (15m)
Max. elevation difference between any two indoor units	33 ft (10m)	33 ft (10m)	33 ft (10m)	33 ft (10m)
Length of total pipe supported by factory precharge	50 ft (15m)	75 ft (22.5m)	100 ft (30m)	125 ft (37.5m)
Type of refrigerant	R-454B			

For installations with connected lengths beyond standard, charge additional R-454B based on the below:

Unit Type (Model Number)	Amount of Refrigerant to Add (based on connected pipe lengths L)	
2-Zone (YN020GLSI24M2G)	0.11 oz x (L1+L2-50ft)	0.10 g x (L1+L2-15m)
3-Zone (YN030GLSI24M3G)	0.11 oz x (L1+L2+L3-75ft)	0.10 g x (L1+L2+L3-22.5m)
4-Zone (YN040GLSI24M4G)	0.11 oz x (L1+L2+L3+L4-100ft)	0.10 g x (L1+L2+L3+L4-30m)
5-Zone (YN050GLSI24M5G)	0.11 oz x (L1+L2+L3+L4+L5-125ft)	0.10 g x (L1+L2+L3+L4+L5-37.5m)

Outdoor Section Installation

4

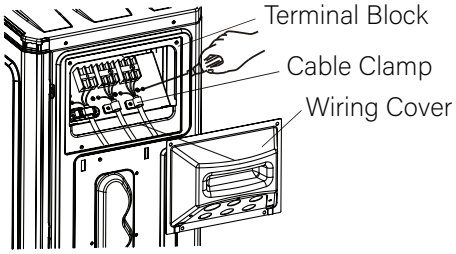
Power Wiring Information

(Applies to 2-zone, 3-zone, 4-zone, 5-zone multi-zone systems)

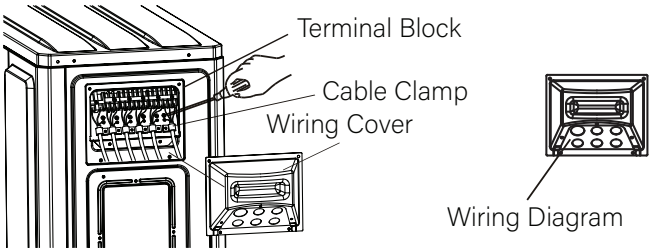
1. Use a Phillips screwdriver to remove the wiring cover. Grip and gently press down to release and remove the cover.
2. Unscrew and remove the cable clamp.
3. Refer to the wiring diagram located on the inside of the wiring cover. Connect the wires to the corresponding terminals, ensuring all connections are secure and properly tightened.
4. Reinstall the cable clamp and wiring cover.

⚠ **Warning:** Before connecting wiring between indoor and outdoor units, ensure the power supply is completely disconnected for a minimum of 2 minutes.

Note: For detailed cable routing and terminal assignments, refer to **Page 13**.



2 Zone System



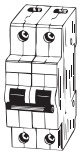
5 Zone System

Cable Wire Specifications

Pioneer YN-L Series Multi Split		2-Zone	3-Zone	4-Zone	5-Zone
		Sectional Area (AWG)			
Power Supply Cable	L2 L1 ⏚	12 AWG	10 AWG	10 AWG	8 AWG
Connection Cable for Communication Between Indoor and Outdoor Units	3(L) 2(N) 1(S) ⏚	16 AWG	16 AWG	16 AWG	16 AWG

Consult the nameplate on the system for detailed electrical specifications.
Confirm wiring based on breaker. Above power wire sizes assume largest allowable fuse.

- *230V require a double-pole breaker (tandem-type will not work)*


Double-Pole 230V Breaker

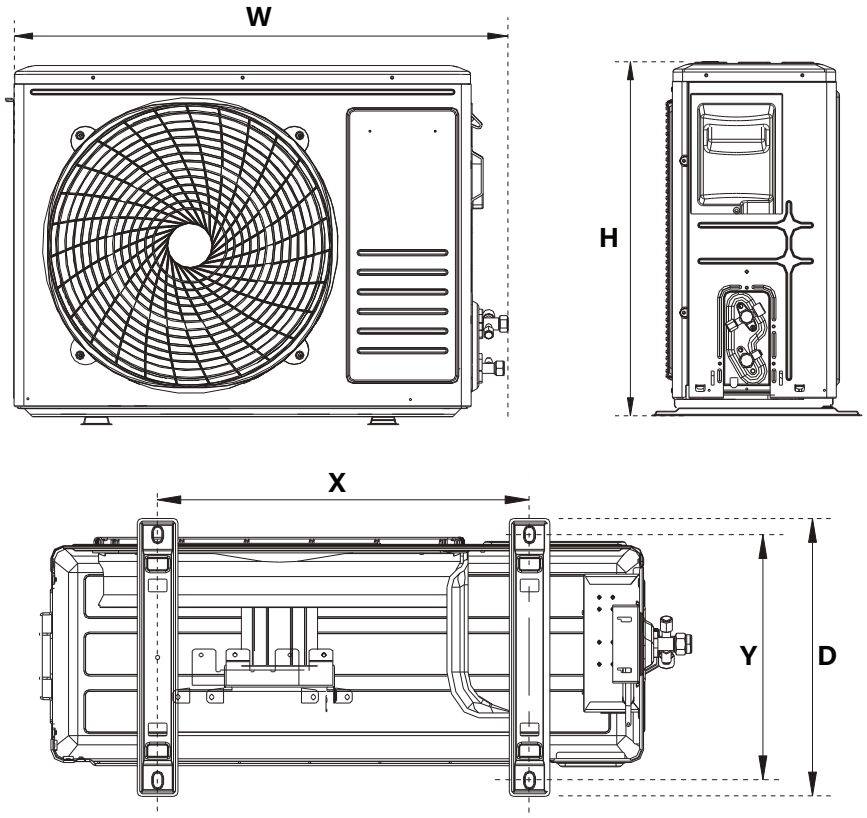
Outdoor Section Installation

4

Anchoring the Outdoor Unit

The outdoor unit can be anchored to the ground or to wall-mounted brackets. The following is a list of different outdoor unit sizes and the distance between their mounting feet. Prepare the installation base of the unit according to the dimensions found below:

Model	W	D	H	X	Y
YN020GLSI24M2G (18000 BTU / 2-Zone)	927 mm	380 mm	699 mm	586 mm	348 mm
	36-1/2"	15"	27-1/2"	23-1/8"	13-3/4"
YN030GLSI24M3G (27000 BTU / 3-Zone)	978 mm	421 mm	803 mm	607 mm	390 mm
	38-1/2"	16-5/8"	31-5/8"	23-7/8"	15-3/8"
YN040GLSI24M4G (36000 BTU / 4-Zone)	1074 mm	468 mm	853 mm	660 mm	462 mm
	42-1/4"	18-3/8"	33-5/8"	26"	18-1/4"
YN050GLSI24M5G (42000 BTU / 5-Zone)	1074 mm	468 mm	853 mm	660 mm	462 mm
	42-1/4"	18-3/8"	33-5/8"	26"	18-1/4"



If installing the unit on the ground or on a concrete mounting platform, do the following:

1. Mark the positions for four expansion bolts based on dimensions in the "Unit Mounting Dimensions" chart.
2. Pre-drill holes for expansion bolts.
3. Clean concrete dust away from holes.
4. Place a nut on the end of each expansion bolt.
5. Hammer expansion bolts into each hole.
6. Remove the nuts from expansion bolts, and place the outdoor unit onto the bolts.
7. Put washers onto each expansion bolt, then replace each of the nuts.
8. Using a wrench, tighten each nut until snug.

WHEN DRILLING INTO CONCRETE, WEAR EYE PROTECTION AT ALL TIMES!

Outdoor Section Installation 4

Refrigerant Circuit Evacuation Procedures (2-Zone)

For 2-Zone systems, the protocol for evacuation is identical to single-zone systems, and is merely repeated once for the 2nd zone. Consult your primary installation manual for the proper procedure.

Refrigerant Circuit Evacuation Procedures (3/4/5-Zone)

For 3/4/5-Zone systems, there is a set of Master (King) Valves in addition to the set of valves that correspond to each respective zone/circuit. Therefore the process differs slightly, and is as follows:

Preparations and Precautions

- Air and moisture inside the refrigerant circuit can lead to pressure abnormalities, reduced efficiency, equipment damage, and safety hazards.
- A vacuum pump and manifold gauge must be used to evacuate the system, removing non-condensable gases and moisture. This procedure is required during initial installation.

Before starting evacuation, verify the following:

- All high-pressure and low-pressure pipes between indoor and outdoor units are connected correctly, as outlined in the Refrigerant Piping Connection section of the primary manual.
- All electrical wiring is securely connected as depicted on Page 13.
- (For best results) A 500 PSI nitrogen leak test has been performed on all refrigerant joints.

Evacuation Procedure

Before use, consult the operation manuals for your manifold gauge and vacuum pump to ensure correct setup and safe use. Ensure gauge hoses are leak-free and the tube pin is properly extended.

1. Connect the Equipment

- Attach the refrigerant hose from the manifold gauge's low-pressure side to the master service valve on the outdoor unit.
- Connect the charge hose from the manifold gauge to the vacuum pump.
- If the refrigerant lines have been installed, open all low-pressure service valves (A2, B2, C2, etc.).

⚠ **Do not open any high-pressure service valves (e.g., A1, B1, C1, etc.) at this stage.**

2. Start the Evacuation Process

- Open the low-pressure knob on the manifold gauge. Ensure the high-pressure knob remains closed.
- Start the vacuum pump to begin evacuating the system.
- Continue vacuuming until the compound gauge reads -76 cmHg (-29.92 inHg or -101 kPa).
- For best results, use a micron gauge and continue evacuating until the system pressure drops to 500 microns or less. Ideal target: 350–500 microns.

Refrigerant Circuit Evacuation Procedures (3/4/5-Zone)

3. Stabilize and Check

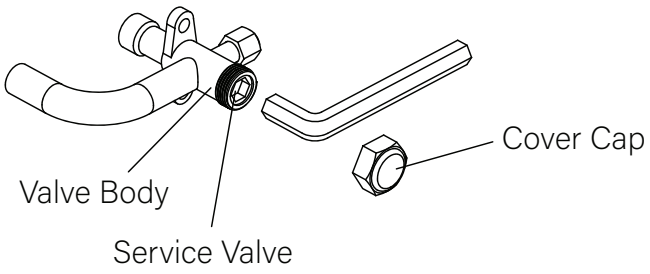
- Once the target vacuum is reached, close the low-pressure knob on the manifold and turn off the vacuum pump.
- Wait 10 to 15 minutes (ideally 1 hour), then verify that the system vacuum reading remains steady.
- If available, use a micron gauge to confirm that the pressure is still below 500 microns.

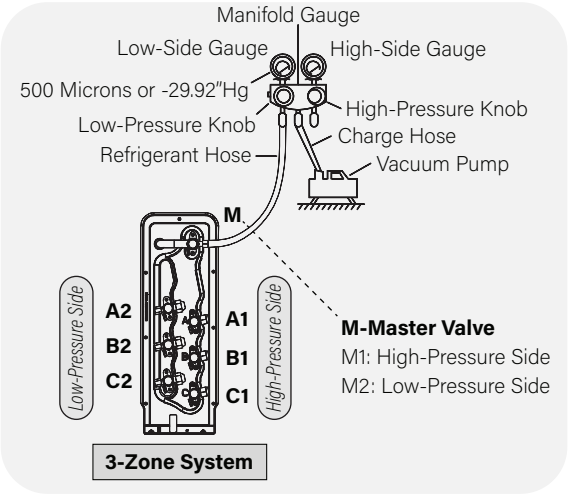
4. Leak Check and Final Valve Operation

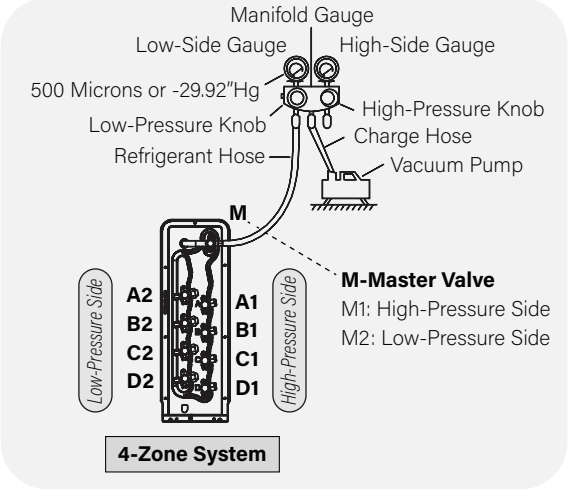
A. If the vacuum level rises, refer to the Gas Leak Check section in the primary installation manual for information on inspecting for leaks.
B. If a leak is confirmed, remove the charge hose and repair the leakage point before repeating evacuation.
C. Once the vacuum holds, use an Allen wrench to fully open the master valves (M1, M2) and the high-pressure service valves (A1, B1, C1, etc.).
D. Tighten all valve caps (master valve, high side, and low side service valves) by hand.
E. Use a torque wrench if necessary for a more secure seal.

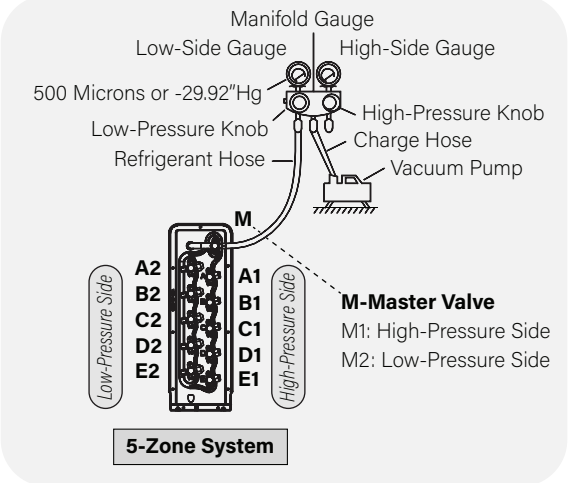
Important Notes:

- Always open service valves slowly.
- When opening, turn the Allen wrench until it meets resistance from the stopper. Do not over-tighten.







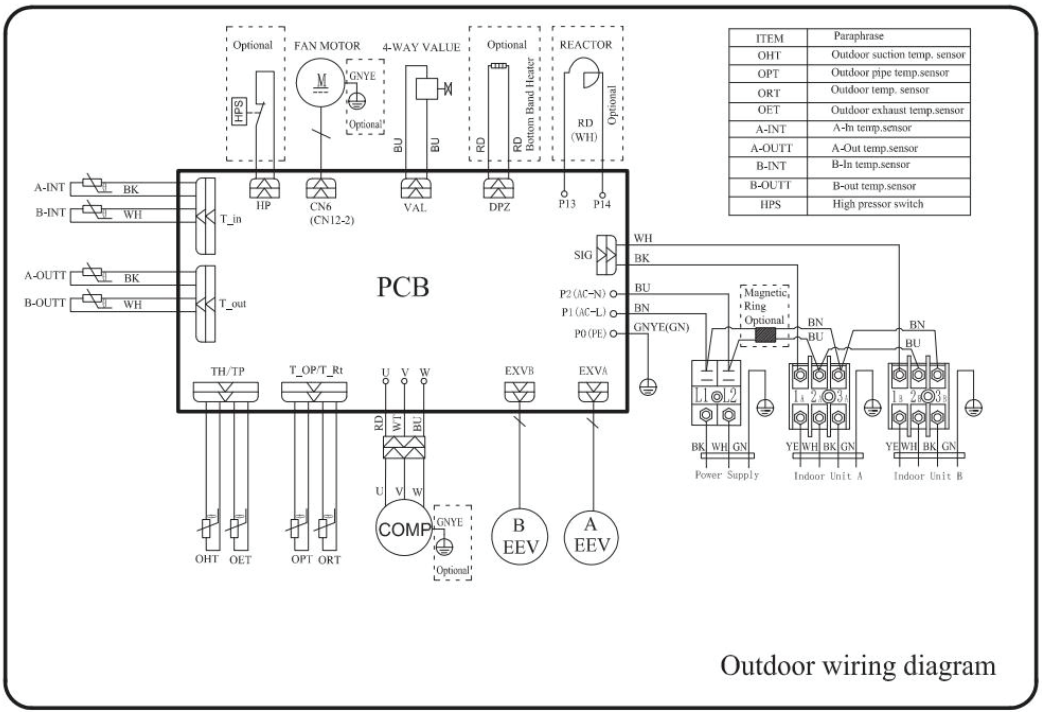


Appendix

A

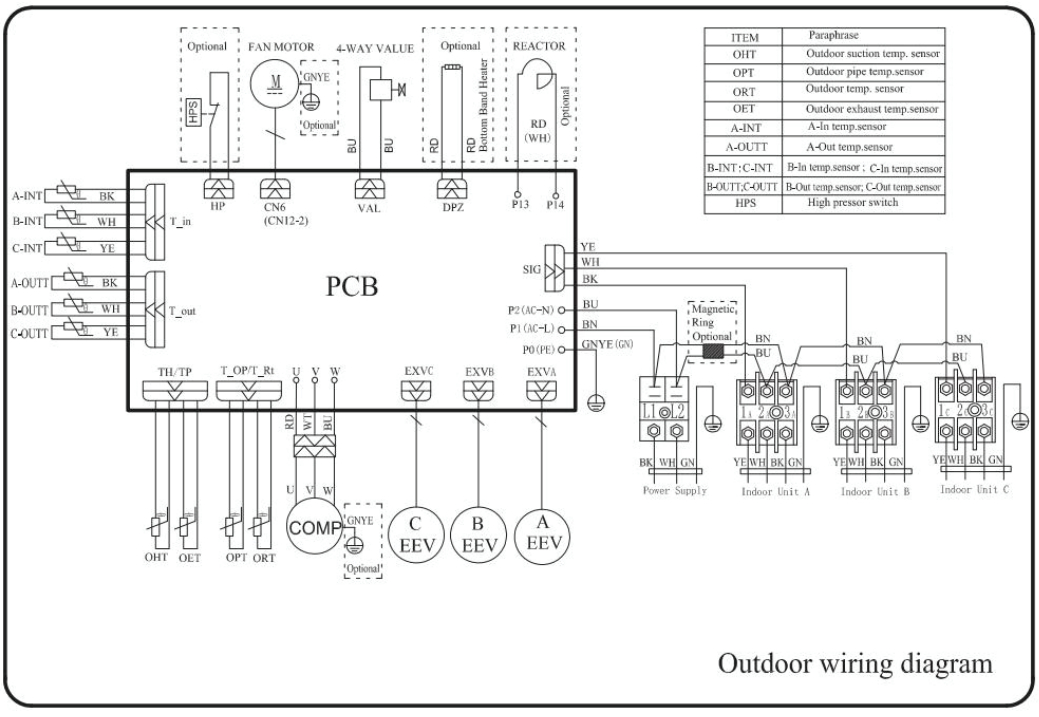
Outdoor Condensing Unit Control Board Wiring Diagrams

OUTDOOR UNIT: YN020GLSI24M2G



Outdoor wiring diagram

OUTDOOR UNIT: YN030GLSI24M3G



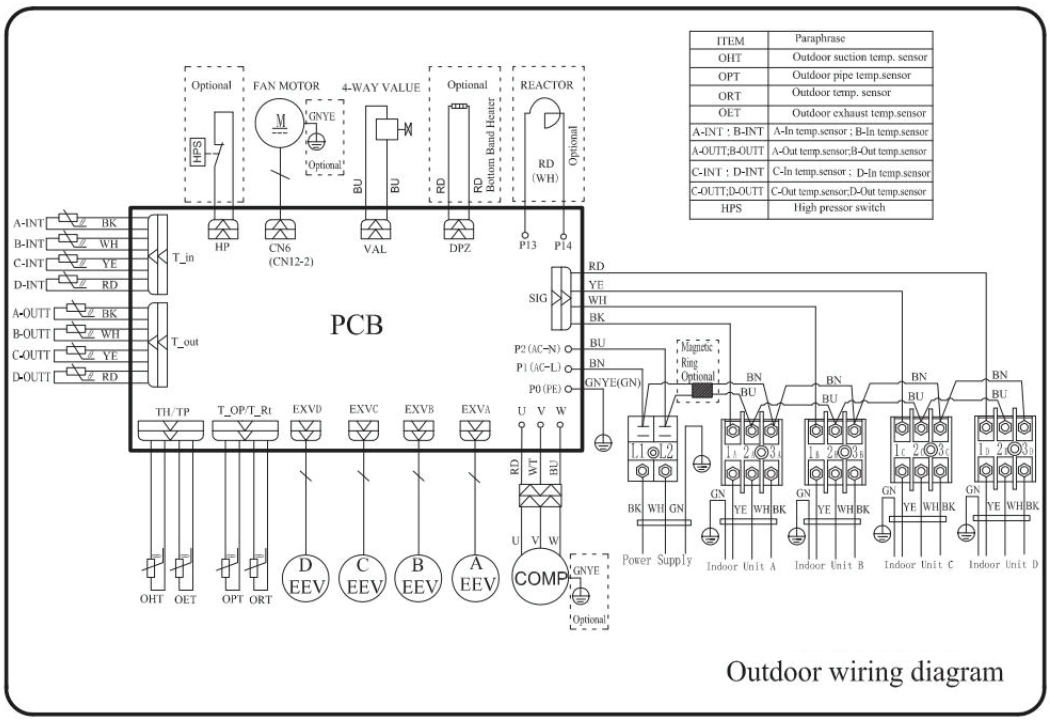
Outdoor wiring diagram

Appendix

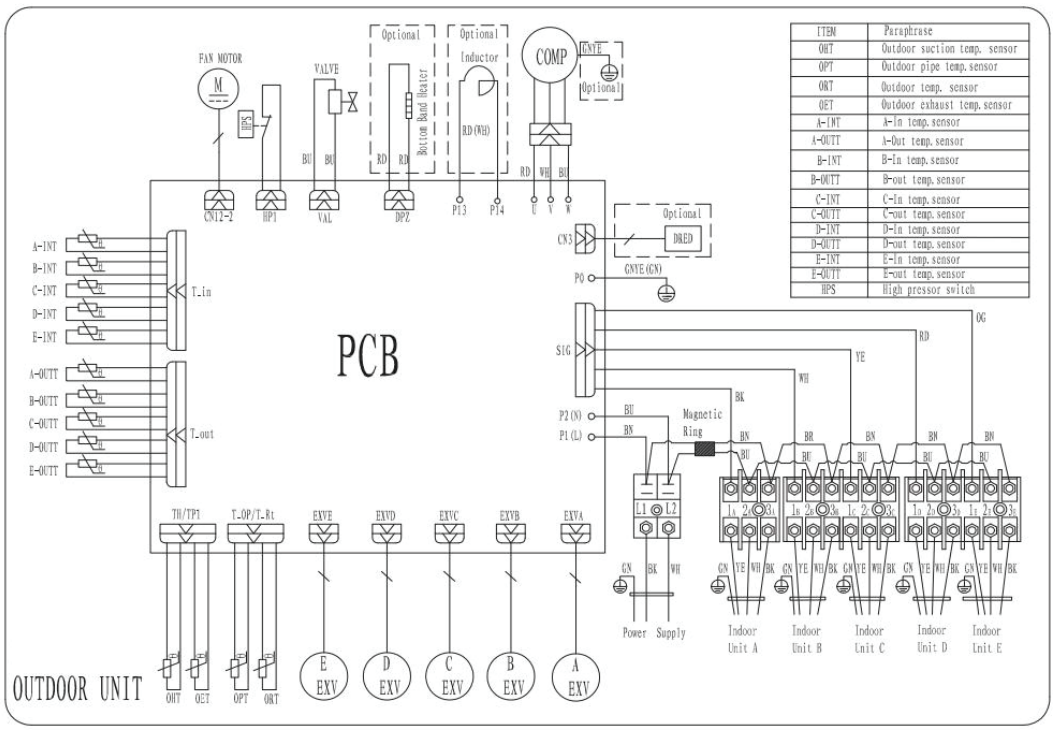
A

Outdoor Condensing Unit Control Board Wiring Diagrams

OUTDOOR UNIT: YN040GLSI24M4G



OUTDOOR UNIT: YN050GLSI24M5G



Appendix

A

Product Disposal Guidelines

This appliance contains refrigerant and other potentially hazardous materials. When disposing of this appliance, the law requires special collection and treatment. Do not dispose of this product as household waste or unsorted municipal waste.

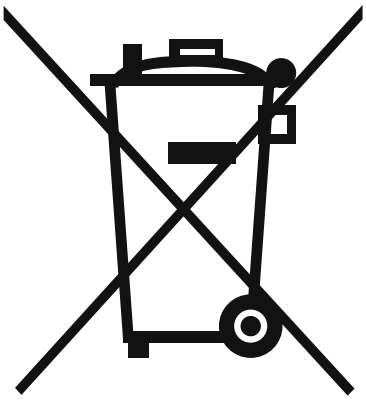
All refrigerant and oil must be removed prior to disposal as outlined within this manual.

When disposing of this appliance, you have the following options:

- Dispose of the appliance at a designated municipal electronic waste collection facility.
- When buying a new appliance, the retailer takes back the old appliance free of charge.
- The manufacturer takes back the old appliance free of charge.
- Sell the appliance to certified scrap metal dealers.

Special Notice

Disposing of this appliance improperly, or in other natural surroundings, endangers your health and is bad for the environment. Hazardous substances may leak into the ground water and enter the food chain. Please follow proper disposal protocol.



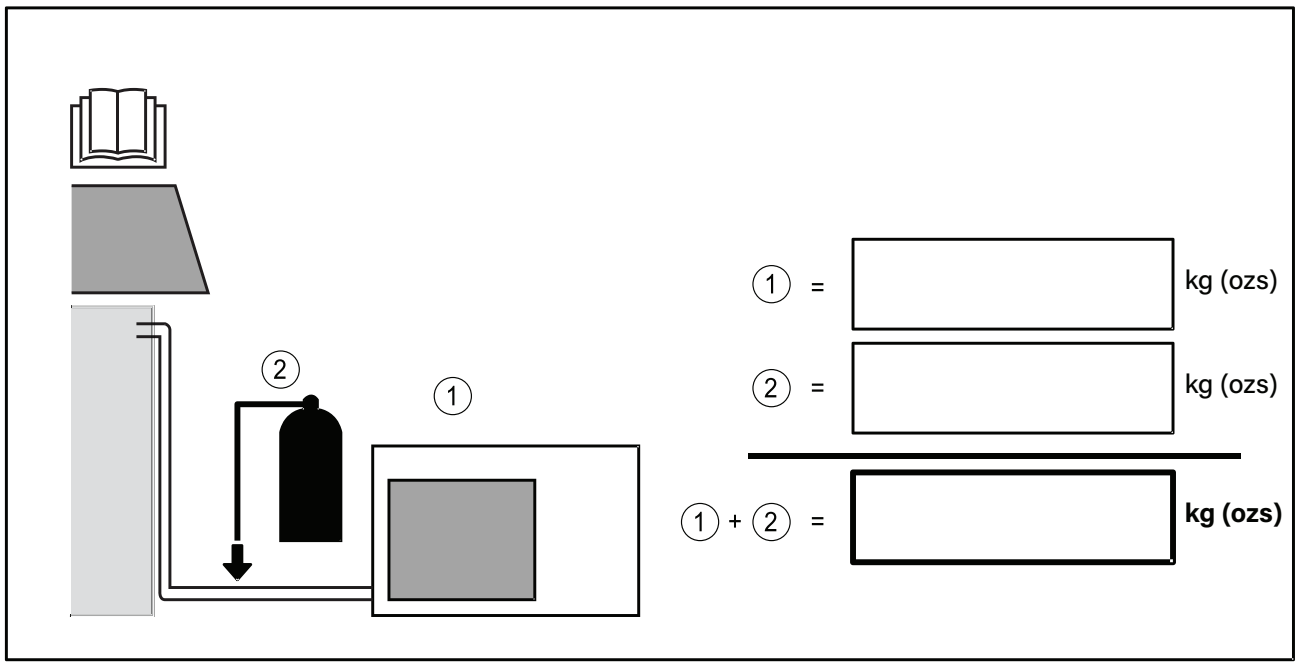
Appendix

A

If Refrigerant Has Been Added to the System During Install

(For the Installer) Please fill in the following:

1) The factory refrigerant charge of the product (located on the outdoor unit nameplate).
2) The additional refrigerant charged into product.
1+2) The total refrigerant charge.



Instruct the user to retain this information for reference during future service and maintenance.

System Notes

The design and specifications of this product are subject to change without prior notice as development continues. Consult with the sales agency or manufacturer for details. Refer to the equipment nameplate for all other applicable specifications.

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