Installation Guide

Split System (R-410A)

13 SEER
9,000 to 24,000 BTU/Hr

4MCW3A12

High Efficiency (13 SEER) **R-410A, 60Hz**

	Indoor Unit	Outdoor Unit
Single Split		
Cooling only	4MCW3-A	4TTK3-A
	4MCW3-B	4TTK3-B

⚠SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

October 2010 **MCW-SVN15B-EN**

Warnings and Cautions

Warnings and Cautions. Notice that warnings and cautions appear at appropriate intervals throughout this manual. Warnings are provided to alert installing contractors to potential hazards that could result in personal injury or death, while cautions are designed to alert personnel to conditions that could result in equipment damage.

Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

Attention: Warnings and Cautions appear at appropriate sections throughout this literature. Read these carefully.

⚠**WARNING**: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠**CAUTION**: Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE: Indicates a situation that could result in equipment or property-damage only accidents.

⚠WARNING

Ground Required!

Follow proper local electrical code on requirements for grounding. Failure to follow code could result in death or serious injury.

⚠WARNING

R410A Refrigerant under Higher Pressure than R22!

The units described in this manual use R410A refrigerant which operates at 50 to 70% higher pressures than R-22. Use only R-410A approved service equipment. Refrigerant cylinders are painted with "pink" color to indicate the type of refrigerant and may contain a "dip" tube to allow for charging of liquid refrigerant into the system. For specific handling concerns with R-410A, please contact your local Trane representative.

Failure to use R-410A approved service equipment could result in standard equipment exploding under R-410A higher pressure which could result in death or serious injury.

NOTICE

Use PVE Oil with R-410A Mini-Split Units!

All R-410A mini-splits use a PVE oil (Polyvinyl Ether Oil) that readily absorbs moisture from the atmosphere. To limit this "hygroscopic" action, the system should remain sealed whenever possible. If a system has been open to the atmosphere for more than 4 hours, the compressor oil must be replaced. Never break a vacuum with air and always change the driers when opening the system for component replacement. For specific handling concerns with PVE oil, contact your local Trane representative.

USE ONLY THE FACTORY RECOMMENDED - DAFNE HERMETIC OIL FV50S - for servicing these units.

Failure to follow these recommendations could result in equipment damage.

Preface

Important!

Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants—including industry replacements for CFCs such as HCFCs and HFCs.

Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All 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 and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

Contents

General Information

This installation Manual is given as a guide to good practices in the installation and operation of a wall mounted split system models 4MCW and 4TTK. However it does not contain all the service procedures for this unit, as these procedures must be performed by a qualified service technician, through the maintenance contract with a reputable service company.

Read these operation Instructions completely before installing the unit.

Warranty

Warranty is based on the general terms and conditions by country. The warranty is void if the equipment is modified or repaired without the written approval of The Trane Company, if the operating limits are exceeded or if the control system or the electrical wiring is modified.

Damage due to inappropriate installation, lack of knowledge or failure to comply with the manufacturer's instructions, is not covered by the warranty obligation.

If the installation does not conform to the rules described in Installation Manual, it may entail cancellation of warranty and liabilities by The Trane Company.

Reception

On arrival, inspect the unit before signing the delivery note. Specify any damage of the unit on the delivery note, and send a registered letter of protest to the last carrier of the goods within 72 hours of delivery. Notify the dealer at the same time.

The unit should be totally inspected within 7 days of delivery. If any concealed damage is discovered, send a registered letter of protest to the carrier within 7 days of delivery and notify the local dealer.

About the Unit

These units are assembled, pressure tested, dehydrated, charged and run tested before shipment. This manual contains informations related to 4MCW and 4TTK units. The 4MCW and 4TTK units operate in cooling only.

Refrigerant

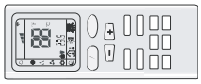
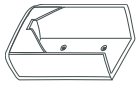
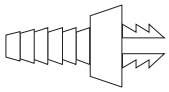
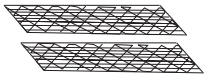
The refrigerant provided by the manufacturer comply with all the requirements for our units. When using a recycled or reprocessed refrigerant, we recommend its qualities be as good as those of a new refrigerant. It is necessary to have the refrigerant tested by a qualified laboratory. Failure to do so could void the warranty.

Important

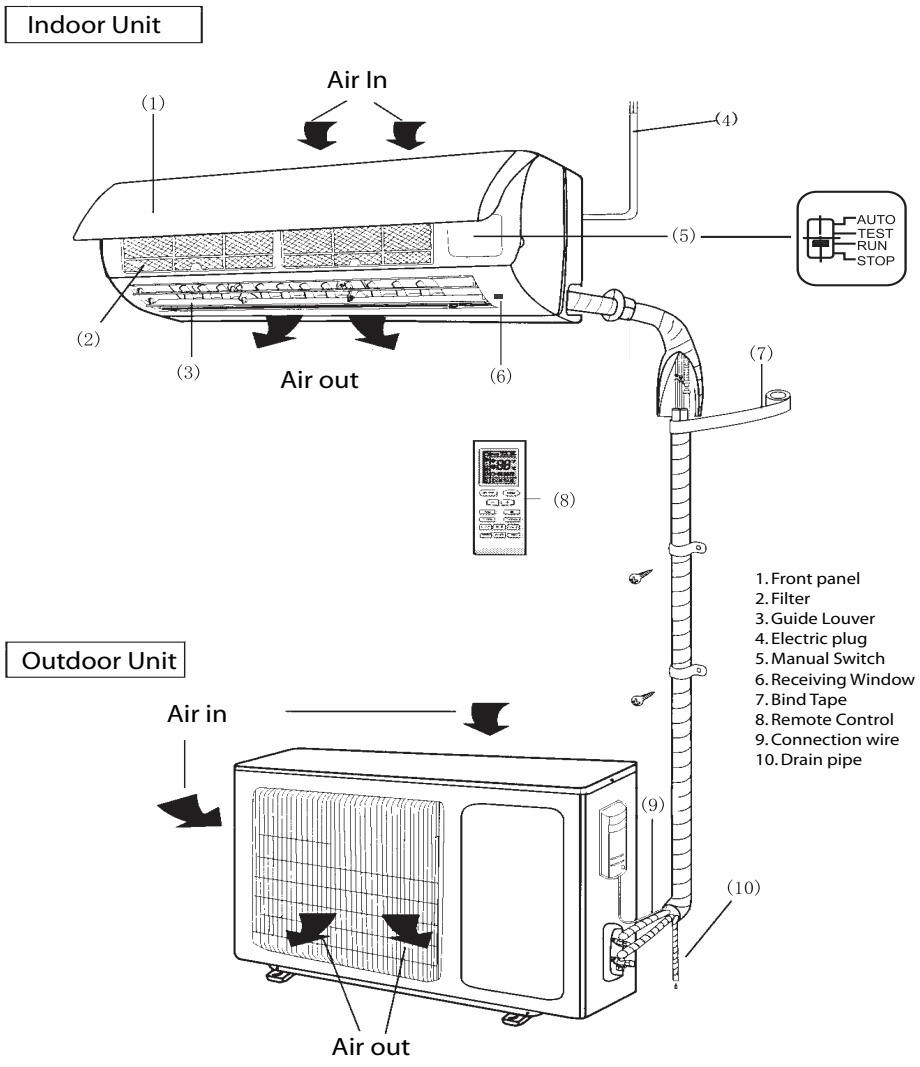
These instructions do not cover all variations in systems, nor do they provide for every possible contingency to be met in connection with installation. Should further information be desired or should particular problems arise which are not covered sufficiently in this manual, the matter should be referred to your authorized Trane dealer.

Accessories

Table 1. Parts list

No.	Part Name	Diagram	Qty	Specification	Memo
1	Mounting plate		1		
2	Wireless remote controller		1		
3	Remote controller holder		1		
4	Battery		2	AAA,1.5V	
5	Tapping screw		10	ST4.2 X 25	For mounting plate
6	Drain hose		1	L = 2m	
7	Thermal insulation		1	φ35 X 500	
8	Drain kit		1		Heat pump type only
9	Drain hole cover		3		Heat pump type only
10	Air cleaner		2		Packaged with indoor unit
11	Air filter		2		

Typical Installation



Installation location

Indoor Unit

⚠WARNING

Adequate Support!

Wall structure must be adequate to support the weight of the unit. Failure to ensure adequate structural support could result in unit falling from its location which could result in death, serious injury, or equipement or property-only damage.

1. The air inlet and outlet should be far away from anything that could prevent the air from reaching all parts of the room.
2. Select a location where it is easy to drain the condensing water and connect to the outdoor unit;
3. Keep the indoor unit far away from heat sources, vapor and inflammable gas;
4. Be sure that the installation of the indoor unit conforms to the installation dimension diagram;
5. Be sure to leave enough space to allow access for routine maintenance; clearance between the indoor unit and the floor should be more than 200cm;
6. Install in a location where the unit is more than 1 meter away from other electric appliances such as television, audio devices etc.;
7. Select location where air filters can be easily removed

Outdoor unit

⚠WARNING

Adequate Support!

Wall structure must be adequate to support the weight of the unit. Failure to ensure adequate structural support could result in unit falling from its location which could result in death, serious injury, or equipement or property-only damage.

1. Select a location from which noise and air discharge by unit will not annoy neighbors.
2. Select a location where there is sufficient ventilation.
3. Make sure the air inlet and outlet are not blocked by any obstacles.
4. Select a location capable of supporting the weight and vibration of the outdoor unit, and where installation work can be carried out safely.
5. Select a location away from flammable gas or gas leaks.
6. Make sure that the installation of the outdoor unit conforms to the installation dimension diagram.

NOTICE

Installing the unit in one of the following locations could result in unit malfunction:

- Places where oil (machine oil) is used
- Seaside/places with high level of salt in the air.
- Places with high level of sulfur gas such as areas with hot springs.
- Places where high-frequency waves are generated by radio equipment, welders and medical equipment.
- Other unusual places where unit operation may be altered.

Installation

Indoor Unit Installation

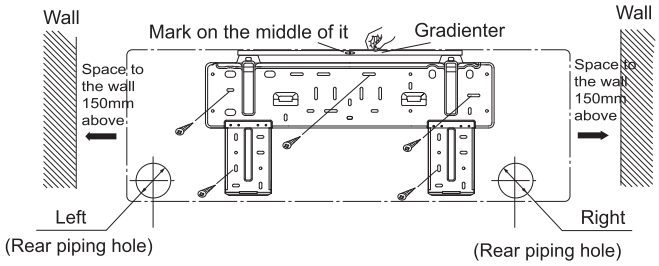
⚠WARNING

Hazardous Service Procedures!

The maintenance and troubleshooting procedures recommended in this section of the manual could result in exposure to electrical, mechanical or other potential safety hazards. Always refer to the safety warnings provided throughout this manual concerning these procedures. When possible, disconnect all electrical power including remote disconnect and discharge all energy storing devices such as capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks. Failure to follow all of the recommended safety warnings provided, could result in death or serious injury.

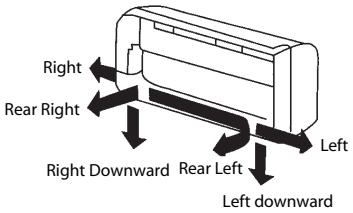
Mounting Location

1. Always mount the rear panel horizontally.
2. Fix the rear panel on the selected location
3. Be sure that the rear panel has been fixed firmly enough to withstand the weight of an adult of 60kg, furthermore, the weight should be evenly shared by each screw.



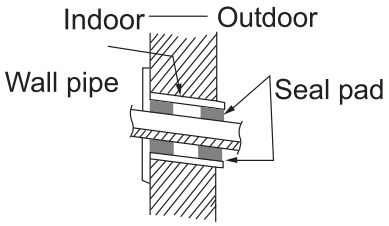
Drilling a hole in the wall to install the piping

The piping can be connected in six different locations on the unit, as shown on figure below:



1. Drill a 65mm diameter hole in the wall at a slight downward angle toward the outdoor side in such a way that the end of the pipe outside is 5 mm lower than the inside.

2. Insert a sleeve into the hole to prevent the connection piping and wiring from being damaged when passing through the hole.



NOTICE

When a wall sleeve is not used, it is then necessary to drill a straight hole in the wall. If the hole is not straight and uniform, this could result in water leaking from condensation, resulting in property damage.

NOTICE

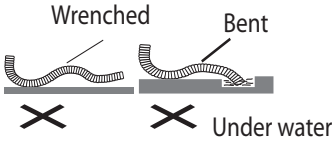
If a wall sleeve is not mounted in the wall, the wiring between the indoor unit and the outdoor unit can possibly be damaged resulting in electrical current loss in the ground wiring.

Installing the water drain pipe

NOTICE

Do not wrench or bend the drain hose and make sure the ends of the drain pipe are not under water. Failure to do so could result in leakage.

1. To ensure proper water drainage, the drain hose should be placed at a downward slant.
2. The water drain pipe must be insulated throughout the house.



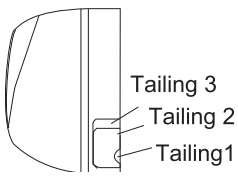
Installing the unit

Note: *The piping can be lead out from right, right rear, left, left rear.*

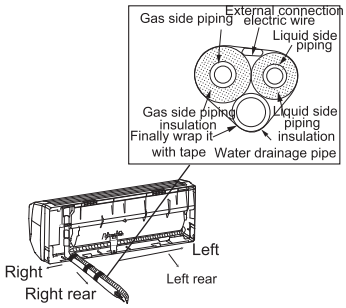
1. When routing the piping and wiring from the left or right side of indoor unit, cut off the tailings from the chassis in necessary.

   (1).Cut off the tailings 1 when routing the wiring only;

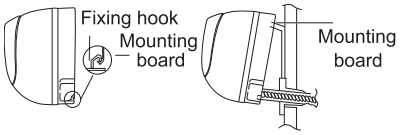
   (2).Cut off the tailings 1 and tailings 2 when routing both the wiring and piping.(or 1,2,3)



2. Take out the piping from body case, wrap the piping electric wire, water pipe with tape and put them through the piping hole.

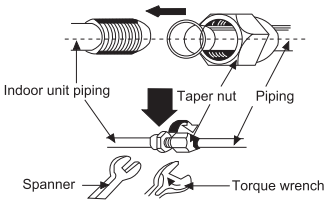


3. Hang the mounting slots of the indoor unit on the upper tabs of the rear panel and check if it is firm enough.



Installing the connection pipe

1. Align the center of the piping flare with the relevant valve.



2. Screw in the flare nut by hand and then tighten the nut with spanner and torque wrench refer to the following.

Table 1. Tightening Torque Table

Hex nut Diameter	Tightening torque (N-m)
6mm - 1/4"	15-20
9.5mm - 3/8"	31-35
12mm - 1/2"	50-55
16mm - 5/8"	60-65

Note: *First, connect the connection pipe to indoor unit, then to outdoor unit; pay attention to the piping bending, do not damage the connection pipe; the joint nut couldn't tighten too much, otherwise it may cause leakage.*

Connect indoor and outdoor electric wires

⚠WARNING

Hazardous Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

1. Open the front panel upwardly.
2. Screw off the fixing screw of cover plate and screw off cover plate.
3. Put the power connection cable through the back of indoor unit wire hole and take it out.
4. All the wiring should be connected according to the circuit diagram on the unit.
5. Put the power connection cable the section, which with sheath into wire groove, and cover the cover plate, screw on the fixing screw, tighten the connection wire.
6. Cover the front panel cover.
7. For the cooling and heating unit, signal control wire can be passed through the connection of connector and indoor unit, and use the wire clip that is under the body case, tighten the signal control wire.

Installing Outdoor Unit

Wiring

⚠WARNING

Hazardous Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

1. Disassemble handle of right side plate or front side plate of outdoor unit.
2. Take off wire clamp, connect and fix power connect cord to terminal of line bank. Wiring should fit that of indoor unit.
3. Fix the power connection cable with wire clamp, for cooling and heating unit, then use the wire clamp to fix the signal control wire, then connect the corresponding connector.
4. Ensure if wire has been fixed well.
5. Install handle or front side plate.

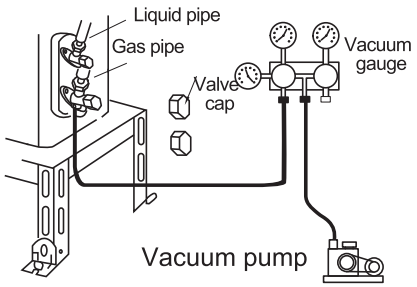
Note: *Wrong wiring may cause spare parts malfunction.*

Note: *After the cable is fixed, make sure there is a free space between the connection and fixing place on the lead wire.*

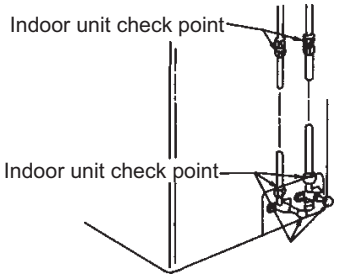
Air purging and leakage test

1. Connect charging hose of manifold valve to charge end of low pressure valve (both high/low pressure valves must be tightly shut).
2. Connect joint of charging hose to vacuum pump.
3. Fully open handle of Low manifold valve.
4. Open the vacuum pump to evacuate. At the beginning, slightly loosen joint nut of low pressure valve to check if there is air coming inside.

5. After finishing evacuation, shut Low handle of manifold valve to stop the vacuum pump. (Keep evacuating for more than 15 minutes and make sure the reading of multi-meter is -1.0x10^5 pa (-76cmHg)
6. Fully open high/low pressure valves.
7. Remove charging hose from charging end of low pressure valve.
8. Tighten bonnet of low-pressure valve.



9. Use soap water or leak hunting meter to check whether the joints are leaking.

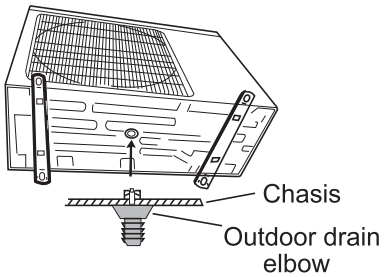


Outdoor condensation drainage (Heat pump type only)

When the unit is heating, the condensing water and defrosting water can be drained out reliably through the drain hose.

Installation

Install the outdoor drain elbow in a 25mm hole on the base plate, and joint the drain hose to the elbow, so that the wastewater formed in the outdoor unit can be drained out to a proper place.



Check after Installation and Test Operation

Items to check	Possible problems they generate
Has the unit been attached firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling(heating) capacity.
Is heat insulation sufficient?	It may cause condensation and dripping.
Is water drainage well?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunction or damage the unit.
Is the electric wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage the unit.
Has the unit been connected to a secure earth connection?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunction or damage the unit
Is the inlet and outlet been covered?	It may cause insufficient cooling(heating) capacity.
Has the length of connection pipes and refrigerant capacity been recorded?	The refrigerant capacity is not accurate.

Before test operation

1. Do not switch on power before installation is finished completely.
2. Electric wiring must be connected correctly and securely.
3. Shut-off valves of the connection pipes should be opened.
4. All the impurities such as scraps and thrums must be cleared from the unit.

Test operation method

1. Switch on power, press "ON/OFF" button on the wireless remote control to start the operation.
2. Press MODE button, to select the COOL, HEAT, FAN to check whether the operation is normal or not.

Connection Pipe

	13 SEER (60 Hz)		4MCW3509A1AA 4TTK3509A1AA	4MCW3512A1AA 4TTK3512A1AA	4MCW3518B1AA 4TTK3518B1AA	4MCW3524B1AA 4TTK3524B1AA
Connection Pipe	Refrigerant Charge (lbs)		2.2 (R-410A)	2.3 (R-410A)	4.84 (R-410A)	5.07 (R-410A)
	Length (m)		8	8	8	8
	Gas additional charge (g/m)		30	30	40	40
	Outer Diameter	Liquid Pipe (mm)	6 (1/4")	6 (1/4")	9.52 (3/8")	9.52 (3/8")
		Gas Pipe (mm)	12 (1/2")	12 (1/2")	16 (5/8")	16 (5/8")
	Max Distance	Height (m)	5	5	10	10
		Length (m)	10	10	15	15

Note: *For additional information on maximum piping length for these systems, please refer to Application guide 32-3009-03.*

Wiring Diagrams

⚠WARNING

Hazardous Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Indoor Units

Figure 1. 4MCW3509 & 4MCW3512

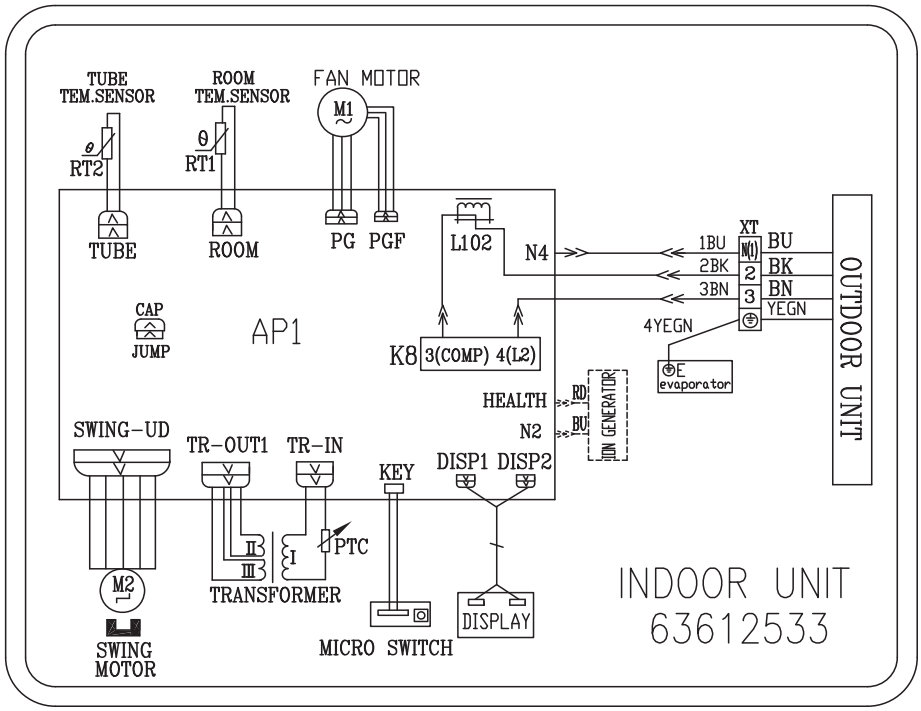
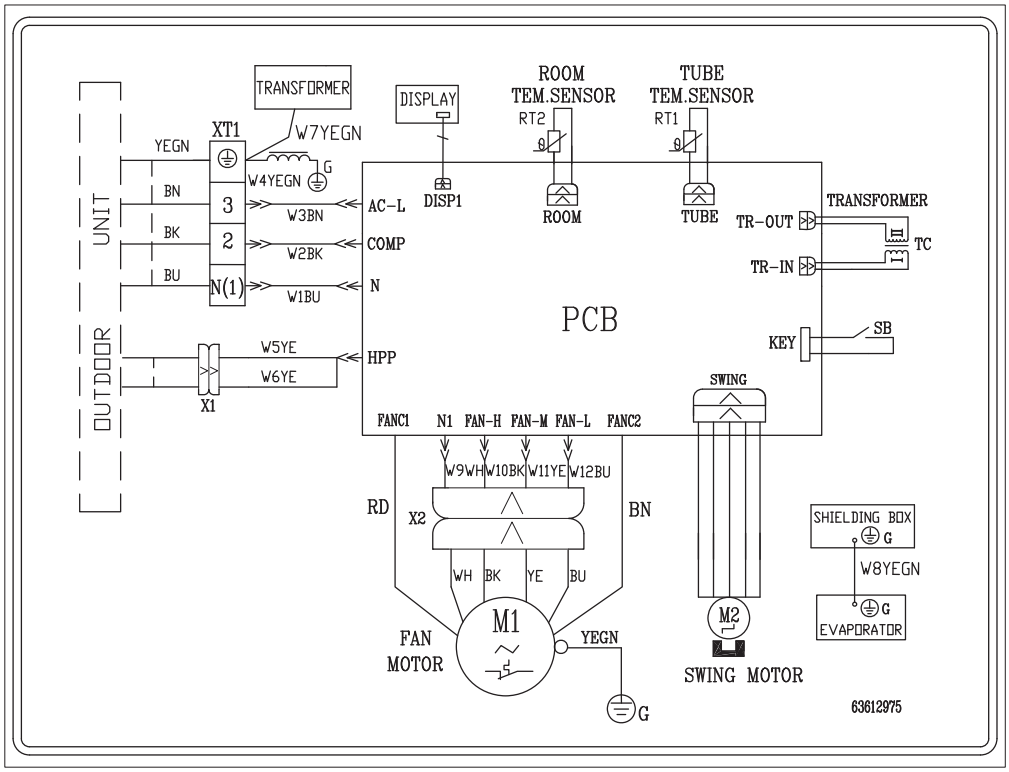


Figure 2. 4MCW3518 & 4MCW3524



Outdoor Units

Figure 3. 4TTK3509

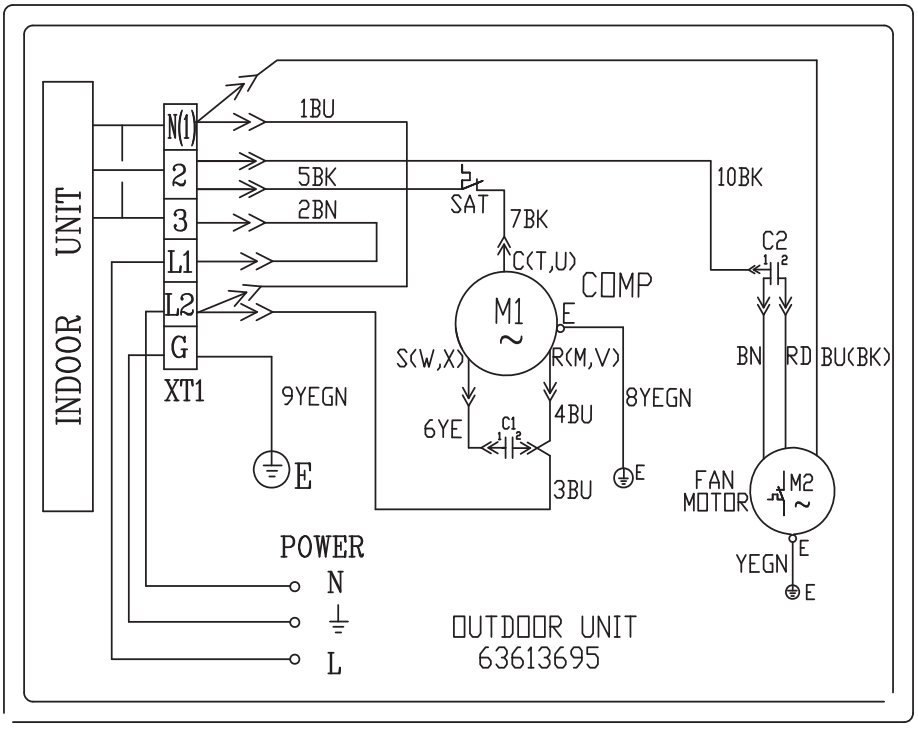


Figure 4. 4TTK3512

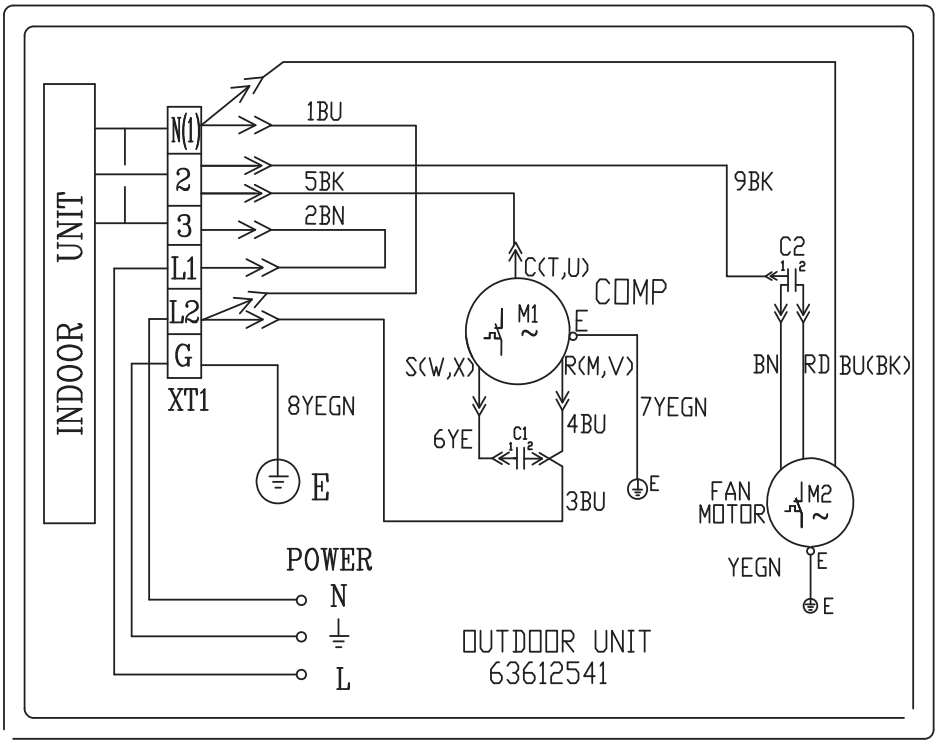


Figure 5. 4TTK3518

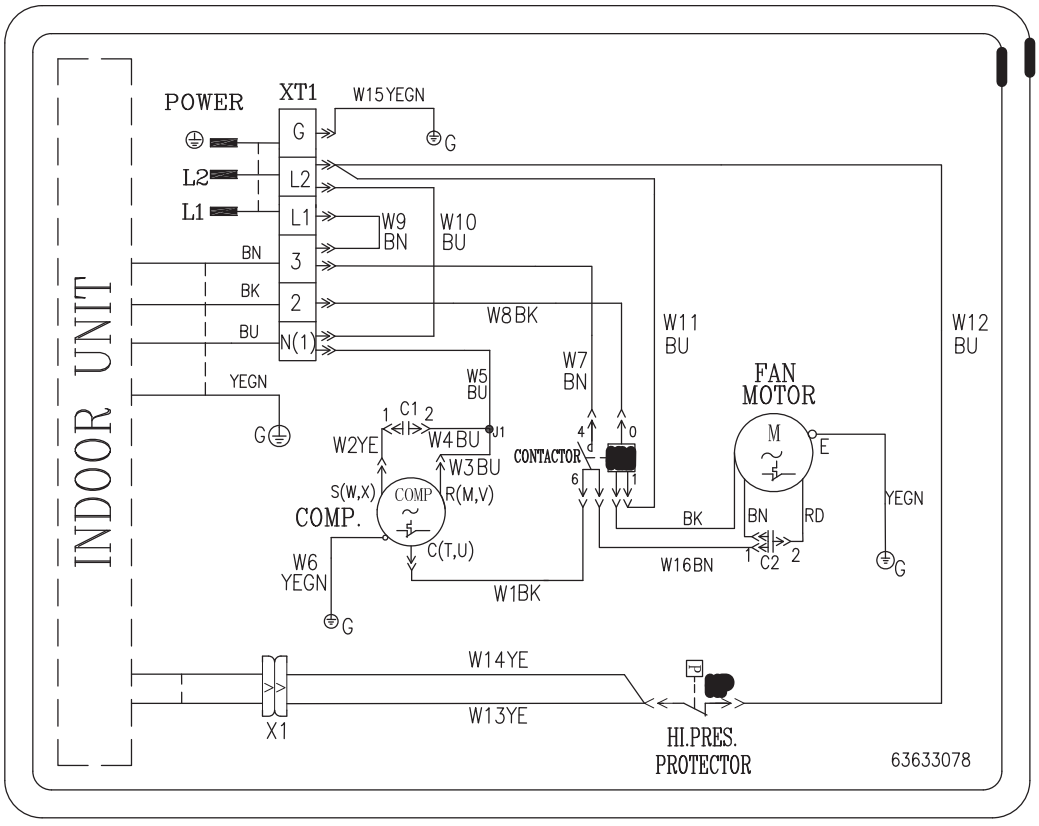
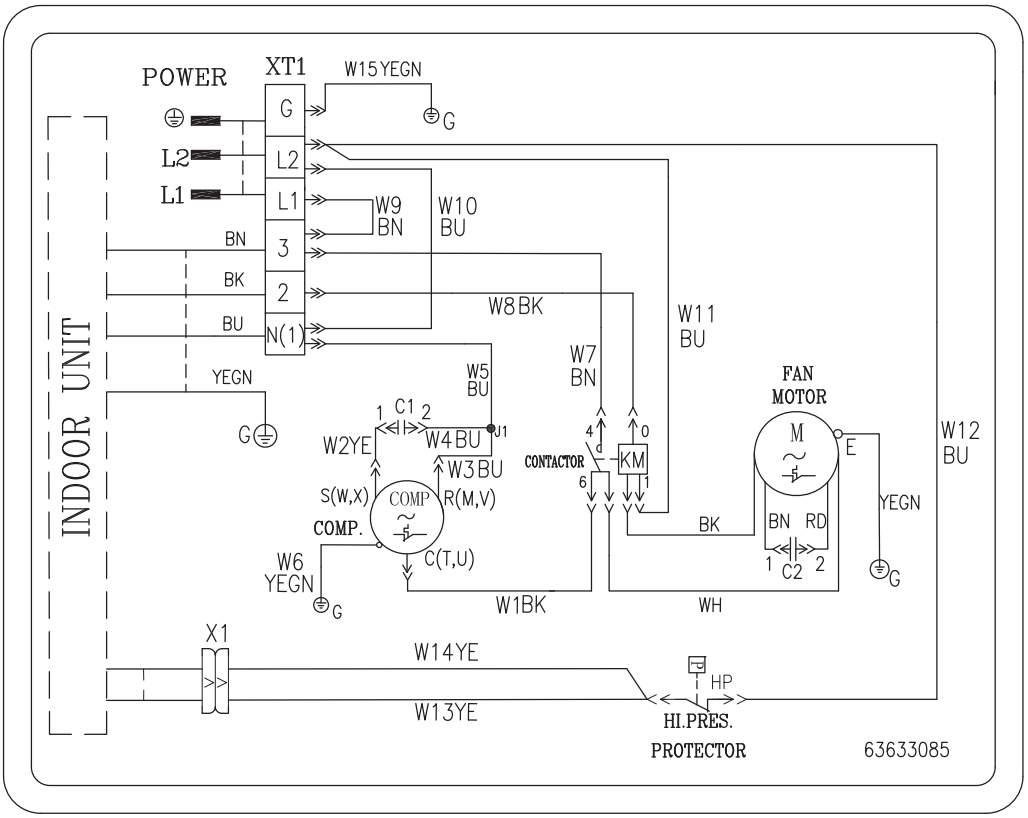


Figure 6. 4TTK3524



Trane optimizes the performance of homes and buildings around the world. A business of Ingersoll Rand, the leader in creating and sustaining safe, comfortable and energy efficient environments, Trane offers a broad portfolio of advanced controls and HVAC systems, comprehensive building services, and parts. For more information, visit www.Trane.com.

MCW-SVN15B-EN 21 Oct 2010
Supersedes MCW-SVN15B-EN (Sep 2009)