

AIR CONDITIONER

DX17VSS AIR CONDITIONING

INSTALLATION & SERVICE REFERENCE



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IMPORTANT SAFETY INSTRUCTIONS

The following symbols and labels are used throughout this manual to indicate immediate or potential safety hazards. It is the owner's and installer's responsibility to read and comply with all safety information and instructions accompanying these symbols. Failure to heed safety information increases the risk of personal injury, property damage, and/or product damage.

WARNING

HIGH VOLTAGE !

DISCONNECT ALL power BEFORE SERVICING.
MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING

ONLY PERSONNEL THAT HAVE BEEN TRAINED TO INSTALL, ADJUST, SERVICE OR REPAIR (HEREINAFTER, "SERVICE") THE EQUIPMENT SPECIFIED IN THIS MANUAL SHOULD SERVICE THE EQUIPMENT. THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SERVICE OR SERVICE PROCEDURES. If YOU SERVICE THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. In ADDITION, IN JURISDICTIONS THAT REQUIRE ONE OR MORE LICENSES TO SERVICE THE EQUIPMENT SPECIFIED IN THIS MANUAL, ONLY LICENSED PERSONNEL SHOULD SERVICE THE EQUIPMENT. IMPROPER INSTALLATION, ADJUSTMENT, SERVICING OR REPAIR OF THE EQUIPMENT SPECIFIED IN THIS MANUAL, OR ATTEMPTING TO INSTALL, ADJUST, SERVICE OR REPAIR THE EQUIPMENT SPECIFIED IN THIS MANUAL WITHOUT PROPER TRAINING MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

SHIPPING INSPECTION

Always keep the unit upright; laying the unit on its side or top may cause equipment damage. Shipping damage, and subsequent investigation is the responsibility of the carrier. Verify the model number, specifications, electrical characteristics, and accessories are correct prior to installation. The distributor or manufacturer will not accept claims from dealers for transportation damage or installation of incorrectly shipped units.

CODES & REGULATIONS

This product is designed and manufactured to comply with national codes. Installation in accordance with such codes and/or prevailing local codes/regulations is the responsibility of the installer. The manufacturer assumes no responsibility for equipment installed in violation of any codes or regulations. Rated performance is achieved after 72 hours of operation. Rated performance is delivered at the specified airflow. See outdoor unit specification sheet for split system models or product specification sheet for packaged and light commercial models. Specification sheets can be found at www.daikin-comfort.com for Daikin products. Within the website, please select the products menu and then select the submenu for the type of product to be installed, such as air conditioners, to access a list of product pages that each contain links to that model's specification sheet.

The United States Environmental Protection Agency (EPA) has issued various regulations regarding the introduction and disposal of refrigerants. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines.

Should you have any questions please contact our local EPA office.

If replacing one of the component of the system, the system must be manufacturer approved and Air Conditioning, Heating and Refrigeration Institute (AHRI) matched.

NOTE: The installation of an inverter air conditioner with unmatched system units will not allow for proper operation.

NOTICE

INVERTER A/C MODELS CAN ONLY BE MATCHED WITH A CAPEA** AND CHPE** A-COIL. DAMAGE RESULTING FROM OPERATION WITH ANY OTHER COMBINATION IS NOT COVERED BY OUR WARRANTIES.

Outdoor inverter units are approved for operation above 0°F in cooling mode with no additional kit necessary.

Damage resulting from operation of the unit in a structure that is not complete (either as part of new construction or renovation) is not covered by our warranties.

FEATURES

This air conditioner is part of a system that uses inverter technology to more efficiently remove heat and achieve the target cooling setting. System may ONLY be installed using a ComfortNet™ thermostat with model number CTK04AE or newer as part of the digital communicating system. The ComfortNet system reduces the number of required thermostat wires, provides additional setup features and enhanced active diagnostics. Due to components using inverter technology, the air conditioner will not function properly if used with a CTK03, 02 or 01 ComfortNet thermostat.

NOTICE

SHOULD USE CTK04AE OR NEWER.
NOT APPROVED FOR USE WITH A CTK01, CTK02, CTK03, CTK04AD OR OLDER.

PRECAUTIONS FOR SELECTING A LOCATION

1. Choose a place solid enough to bear the weight and vibration of the unit, where the operating sound will not be amplified.
2. Choose a location where the hot air discharged from the unit or the operating sound will not cause a nuisance to the neighbours of the user.
3. Avoid places near a bedroom and the like, so that the operating sound will cause no trouble.
4. There must be sufficient spaces for carrying the unit into and out of the site.
5. There must be sufficient space for air passage and no obstructions around the air inlet and the air outlet.
6. The site must be free from the possibility of flammable gas leakage in a nearby place.
7. Do not install the air conditioner in the following locations:
 - (a) Where a mineral oil mist or oil spray or vapor is produced, for example, in a kitchen.
Plastic parts may deteriorate and fall off and thus may result in water leakage.
 - (b) Where corrosive gas, such as sulfurous acid gas, is produced.
Corroding copper pipes or soldered parts may result in refrigerant leakage.
 - (c) Near machinery emitting electromagnetic waves.
Electromagnetic waves may disturb the operation of the control system and cause the unit to malfunction.
 - (d) Where flammable gas may leak, where there is carbon fiber, or ignitable dust suspension in the air, or where volatile flammables such as thinner or gasoline are handled.
Operating the unit in such conditions may result in a fire.

NOTE: Cannot be installed suspended from ceiling or stacked.



CAUTION

WHEN OPERATING THE AIR CONDITIONER IN A LOW OUTDOOR AMBIENT TEMPERATURE, BE SURE TO FOLLOW THE INSTRUCTIONS DESCRIBED BELOW.

- TO PREVENT EXPOSURE TO WIND, INSTALL THE OUTDOOR UNIT WITH ITS SUCTION SIDE FACING THE WALL.
- NEVER INSTALL THE OUTDOOR UNIT AT A SITE WHERE THE SUCTION SIDE MAY BE EXPOSED DIRECTLY TO WIND.
- TO PREVENT EXPOSURE TO WIND, IT IS RECOMMENDED TO INSTALL A BAFFLE PLATE ON THE AIR DISCHARGE SIDE OF THE OUTDOOR UNIT.
- IN HEAVY SNOWFALL AREAS, SELECT AN INSTALLATION SITE WHERE THE SNOW WILL NOT AFFECT THE UNIT.

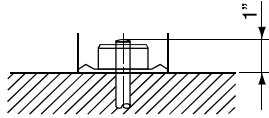
- Construct a large canopy.
- Construct a pedestal.



Install the unit high enough off the ground to prevent burying in snow.

PRECAUTIONS FOR INSTALLATION

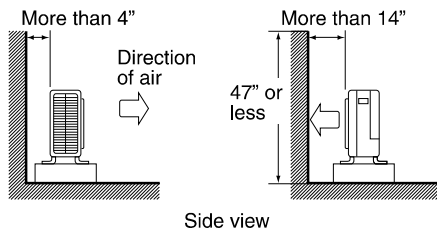
- Check the strength and level of the installation ground so that the unit will not cause any operating vibration or noise after installed.
- Fix the unit securely by means of the foundation bolts. (Prepare 4 sets of 3/8" or 7/16" foundation bolts, nuts and washers; all separately available.)
- It is best to screw in the foundation bolts until their ends are 1 inch from the foundation surface.



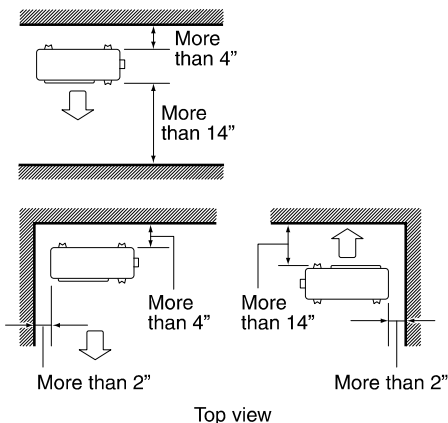
INSTALLATION CLEARANCES

- Where a wall or other obstacle is in the path of the outdoor unit's intake or exhaust airflow, follow the installation space requirements below.
- For any of the below installation patterns, the wall height on the outlet side should be 47" or less.

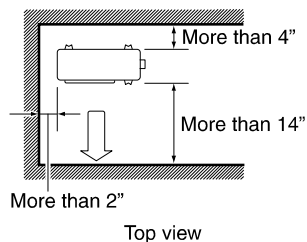
Wall facing one side



Walls facing two sides



Walls facing three sides



unit: inch

This unit can be located at ground floor level or on flat roofs.

At ground floor level, the unit must be on a solid, level foundation that will not shift or settle. To reduce the possibility of sound transmission, the foundation slab should not be in contact with or be an integral part of the building foundation. Care should be taken to ensure the unit is installed away from noise sensitive locations such as bedrooms, windows and outdoor living areas. Ensure the foundation is sufficient to support the unit. A concrete slab raised above ground level provides a suitable base.

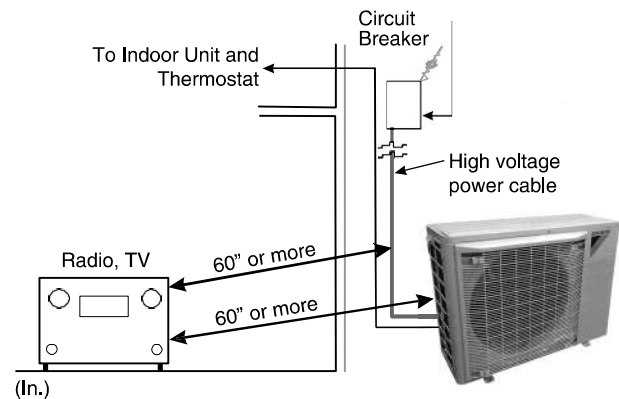
ROOFTOP INSTALLATIONS

If it is necessary to install this unit on a roof structure, ensure the roof structure can support the weight and that proper consideration is given to the weather-tight integrity of the roof. Since the unit can vibrate during operation, sound vibration transmission should be considered when installing the unit. Vibration absorbing pads or springs can be installed between the air conditioner unit legs or frame and the roof mounting assembly to reduce noise vibration.

ELECTRICAL NOISE

The unit should be well grounded so that potential effects of electrical noise from the inverter to surrounding equipment can be minimized.

When selecting an installation location, keep sufficient distance from the air conditioner unit and wiring to radios, personal computers, stereos, fluorescent lamp, etc., as shown in the following figure.



Placement to Minimize Electronic Noise

SAFETY CONSIDERATIONS

Read these Safety considerations for Installation carefully before installing an air conditioner. After completing the installation, make sure that the unit operates properly during the system start-up operation.


Instruct the customer on how to operate and maintain the unit. Inform customers that they should store this Installation Manual for future reference.


Always use a licensed installer or contractor to install this product.

Improper installation can result in water or refrigerant leakage, electrical shock, fire, or explosion.

Meanings of **WARNING**, **CAUTION**, and **NOTICE**

Symbols:

 **WARNING** Indicates imminently or potentially hazardous situation which, if not avoided, will result in death or serious injury.

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

NOTICE Indicates situations that may result in equipment or property-damage accidents only.

While these items will not cover every conceivable situation, they should serve as a useful guide.



WARNING

TO AVOID POSSIBLE INJURY, EXPLOSION OR DEATH, PRACTICE SAFE HANDLING OF REFRIGERANTS.



WARNING

REFRIGERANTS ARE HEAVIER THAN AIR. THEY CAN “PUSH OUT” THE OXYGEN IN YOUR LUNGS OR IN ANY ENCLOSED SPACE. TO AVOID POSSIBLE DIFFICULTY IN BREATHING OR DEATH:

- NEVER PURGE REFRIGERANT INTO AN ENCLOSED ROOM OR SPACE. BY LAW, ALL REFRIGERANTS MUST BE RECLAIMED.
- IF AN INDOOR LEAK IS SUSPECTED, THOROUGHLY VENTILATE THE AREA BEFORE BEGINNING WORK.
- LIQUID REFRIGERANT CAN BE VERY COLD. TO AVOID POSSIBLE FROST BITE OR BLINDNESS, AVOID CONTACT AND WEAR GLOVES AND GOGGLES. IF LIQUID REFRIGERANT DOES CONTACT YOUR SKIN OR EYES, SEEK MEDICAL HELP IMMEDIATELY.
- IF REFRIGERANT GAS LEAKS DURING INSTALLATION, VENTILATE THE AREA IMMEDIATELY. REFRIGERANT GAS WILL RESULT IN PRODUCING TOXIC GAS IF IT COMES INTO CONTACT WITH FIRE. EXPOSURE TO THIS GAS WILL RESULT IN SEVERE INJURY OR DEATH.
- AFTER COMPLETING THE INSTALLATION WORK, CHECK THAT THE REFRIGERANT GAS DOES NOT LEAK THROUGHOUT THE SYSTEM.
- DO NOT INSTALL UNIT IN AN AREA WHERE FLAMMABLE MATERIALS ARE PRESENT DUE TO RISK OF EXPLOSIONS THAT WILL RESULT IN SERIOUS INJURY OR DEATH.
- WHEN INSTALLING THE UNIT IN A SMALL ROOM, TAKE MEASURES TO KEEP THE REFRIGERANT CONCENTRATION FROM EXCEEDING ALLOWABLE SAFETY LIMITS. EXCESSIVE REFRIGERANT LEAKS, IN THE EVENT OF AN ACCIDENT IN A CLOSED AMBIENT SPACE, COULD RESULT IN OXYGEN DEFICIENCY.
- ALWAYS FOLLOW EPA REGULATIONS. NEVER BURN REFRIGERANT, AS POISONOUS GAS WILL BE PRODUCED.



WARNING

TO AVOID POSSIBLE EXPLOSION, USE ONLY RETURNABLE (NOT DISPOSABLE) SERVICE CYLINDERS WHEN REMOVING REFRIGERANT FROM A SYSTEM.

- ENSURE THE CYLINDER IS FREE OF DAMAGE WHICH COULD LEAD TO A LEAK OR EXPLOSION.
 - ENSURE THE HYDROSTATIC TEST DATE DOES NOT EXCEED 5 YEARS.
 - ENSURE THE PRESSURE RATING MEETS OR EXCEEDS 400 PSIG.
- WHEN IN DOUBT, DO NOT USE CYLINDER.

WARNING

TO AVOID POSSIBLE EXPLOSION:

- NEVER APPLY FLAME OR STEAM TO A REFRIGERANT CYLINDER. IF YOU MUST HEAT A CYLINDER FOR FASTER CHARGING, PARTIALLY IMMERSE IT IN WARM WATER.
- NEVER FILL A CYLINDER MORE THAN **80%** FULL OF LIQUID REFRIGERANT.
- NEVER ADD ANYTHING OTHER THAN **R-410A** TO A RETURNABLE **R-410A** CYLINDER. THE SERVICE EQUIPMENT USED MUST BE LISTED OR CERTIFIED FOR THE TYPE OF REFRIGERANT USE.
- STORE CYLINDERS IN A COOL, DRY PLACE. NEVER USE A CYLINDER AS A PLATFORM OR A ROLLER.

CAUTION

- REFRIGERANT **R410A** IN THE SYSTEM MUST BE KEPT CLEAN, DRY, AND TIGHT.
 - (a) **CLEAN AND DRY** - FOREIGN MATERIALS (INCLUDING MINERAL OILS SUCH AS **SUNISO** OIL OR MOISTURE) SHOULD BE PREVENTED FROM GETTING INTO THE SYSTEM.
 - (b) **TIGHT** - **R410A** DOES NOT CONTAIN ANY CHLORINE, DOES NOT DESTROY THE OZONE LAYER, AND DOES NOT REDUCE THE EARTH'S PROTECTION AGAIN HARMFUL ULTRAVIOLET RADIATION. **R410A** CAN CONTRIBUTE TO THE GREENHOUSE EFFECT IF IT IS RELEASED. THEREFORE TAKE PROPER MEASURES TO CHECK FOR THE TIGHTNESS OF THE REFRIGERANT PIPING INSTALLATION. READ THE CHAPTER **REFRIGERANT PIPING** AND FOLLOW THE PROCEDURES.
- SINCE **R410A** IS A BLEND, THE REQUIRED ADDITIONAL REFRIGERANT MUST BE CHARGED IN ITS LIQUID STATE. IF THE REFRIGERANT IS CHARGED IN A STATE OF GAS, ITS COMPOSITION CAN CHANGE AND THE SYSTEM WILL NOT WORK PROPERLY.

WARNING

- DO NOT GROUND UNITS TO WATER PIPES, SUCTION LINE, TELEPHONE WIRES, OR LIGHTNING RODS AS INCOMPLETE GROUNDING WILL RESULT A SEVERE SHOCK HAZARD RESULTING IN SEVERE INJURY OR DEATH. ADDITIONALLY, GROUNDING TO GAS PIPES WILL RESULT A GAS LEAK AND POTENTIAL EXPLOSION RESULTING IN SEVERE INJURY OR DEATH.
- SAFELY DISPOSE ALL PACKING AND TRANSPORTATION MATERIALS IN ACCORDANCE WITH FEDERAL/STATE/LOCAL LAWS OR ORDINANCES. PACKING MATERIALS SUCH AS NAILS AND OTHER METAL OR WOOD PARTS, INCLUDING PLASTIC PACKING MATERIALS USED FOR TRANSPORTATION WILL RESULT IN INJURIES OR DEATH BY SUFFOCATION.
- ONLY QUALIFIED PERSONNEL MUST CARRY OUT THE INSTALLATION WORK. INSTALLATION MUST BE DONE IN ACCORDANCE WITH THIS INSTALLATION MANUAL. IMPROPER INSTALLATION COULD RESULT IN WATER LEAKAGE, ELECTRIC SHOCK, OR FIRE.
- USE ONLY SPECIFIED ACCESSORIES AND PARTS FOR INSTALLATION WORK. FAILURE TO USE SPECIFIED PARTS COULD RESULT IN WATER LEAKAGE, ELECTRIC SHOCKS, FIRE, OR THE UNIT FALLING.
- INSTALL THE AIR CONDITIONER ON A FOUNDATION STRONG ENOUGH THAT IT CAN WITHSTAND THE WEIGHT OF THE UNIT. A FOUNDATION OF INSUFFICIENT STRENGTH COULD RESULT IN THE UNIT FALLING AND CAUSING INJURIES.
- TAKE INTO ACCOUNT STRONG WINDS, TYPHOONS, OR EARTHQUAKES WHEN INSTALLING. IMPROPER INSTALLATION COULD RESULT IN THE UNIT FALLING AND CAUSING ACCIDENTS.
- MAKE SURE THAT A SEPARATE POWER SUPPLY CIRCUIT IS PROVIDED FOR THIS UNIT AND THAT ALL ELECTRICAL WORK IS CARRIED OUT BY QUALIFIED PERSONNEL ACCORDING TO LOCAL, STATE AND NATIONAL REGULATIONS. AN INSUFFICIENT POWER SUPPLY CAPACITY OR IMPROPER ELECTRICAL CONSTRUCTION COULD RESULT IN ELECTRIC SHOCKS OR FIRE.
- MAKE SURE THAT ALL WIRING IS SECURED, THAT SPECIFIED WIRES ARE USED, AND THAT NO EXTERNAL FORCES ACT ON THE TERMINAL CONNECTIONS OR WIRES. IMPROPER CONNECTIONS OR INSTALLATION COULD RESULT IN FIRE.
- WHEN WIRING, POSITION THE WIRES SO THAT THE SIDE PLATE WHICH COVERS TERMINAL BLOCK OF POWER CABLE CAN BE SECURELY FASTENED. IMPROPER POSITIONING OF THE SIDE PLATE COULD RESULT IN ELECTRIC SHOCKS, FIRE, OR THE TERMINALS OVERHEATING.
- THIS EQUIPMENT CAN BE INSTALLED WITH A **GROUND-FAULT CIRCUIT INTERRUPTER (GFCI)**. ALTHOUGH THIS IS A RECOGNIZED MEASURE FOR ADDITIONAL PROTECTION, WITH THE GROUNDING SYSTEM IN NORTH AMERICA, A DEDICATED **GFCI** IS NOT NECESSARY.
- DO NOT CHANGE THE SETTING OF THE PROTECTION DEVICES. IF THE PRESSURE SWITCH, THERMAL SWITCH, OR OTHER PROTECTION DEVICE IS SHORTED AND OPERATED FORCIBLY, OR PARTS OTHER THAN THOSE SPECIFIED BY **DAIKIN** ARE USED, FIRE OR EXPLOSION COULD RESULT.



CAUTION

- **DO NOT TOUCH THE SWITCH WITH WET FINGERS. TOUCHING A SWITCH WITH WET FINGERS MAY RESULT IN ELECTRIC SHOCK.**
- **DO NOT ALLOW CHILDREN TO PLAY ON OR AROUND THE UNIT OR IT MAY RESULT IN INJURY.**
- **THE HEAT EXCHANGER FINS ARE SHARP ENOUGH TO CUT, AND MAY RESULT IN INJURY IF IMPROPERLY USED. TO AVOID INJURY WEAR GLOVE OR COVER THE FINS WHEN WORKING AROUND THEM.**
- **DO NOT TOUCH THE REFRIGERANT PIPES DURING AND IMMEDIATELY AFTER OPERATION AS THE REFRIGERANT PIPES MAY BE HOT OR COLD, DEPENDING ON THE CONDITION OF THE REFRIGERANT FLOWING THROUGH THE REFRIGERANT PIPING, COMPRESSOR, AND OTHER REFRIGERANT CYCLE PARTS. IT MAY RESULT IN YOUR HANDS GETTING BURNS OR FROSTBITE IF YOU TOUCH THE REFRIGERANT PIPES. TO AVOID INJURY, GIVE THE PIPES TIME TO RETURN TO NORMAL TEMPERATURE OR, IF YOU MUST TOUCH THEM, BE SURE TO WEAR PROPER GLOVES.**
- **INSULATE SUCTION PIPING TO PREVENT CONDENSATION.**
- **BE CAREFUL WHEN TRANSPORTING THE PRODUCT.**
- **TAKE ADEQUATE MEASURES TO PREVENT THE OUTDOOR UNIT FROM BEING USED AS A SHELTER BY SMALL ANIMALS. SMALL ANIMALS MAKING CONTACT WITH ELECTRICAL PARTS MAY RESULT IN MALFUNCTIONS, SMOKE, OR FIRE. INSTRUCT THE CUSTOMER TO KEEP THE AREA AROUND THE UNIT CLEAN.**

NOTICE

- **IF THE CONVENTIONAL REFRIGERANT AND REFRIGERATOR OIL ARE MIXED IN R410A, THE REFRIGERANT RESULT IN DETERIORATION.**
- **THIS AIR CONDITIONER IS AN APPLIANCE THAT SHOULD NOT BE ACCESSIBLE TO THE GENERAL PUBLIC.**
- **AS DESIGN PRESSURE IS 450 PSI (3.1 MPa), THE WALL THICKNESS OF FIELD-INSTALLED PIPES SHOULD BE SELECTED IN ACCORDANCE WITH THE RELEVANT LOCAL, STATE, AND NATIONAL REGULATIONS.**

REFRIGERANT LINES



CAUTION

THE COMPRESSOR PVE OIL FOR R-410A UNITS IS EXTREMELY SUSCEPTIBLE TO MOISTURE ABSORPTION AND COULD CAUSE COMPRESSOR FAILURE. DO NOT LEAVE SYSTEM OPEN TO ATMOSPHERE ANY LONGER THAN NECESSARY FOR INSTALLATION.

Use only refrigerant grade (dehydrated and sealed) copper tubing to connect the air conditioner with the indoor evaporator. After cutting the tubing, install plugs to keep refrigerant tubing clean and dry prior to and during installation. Tubing should always be cut square keeping ends round and free from burrs. Clean the tubing to prevent contamination. The liquid line must be insulated if more than 50 ft. of liquid line will pass through an area that may reach temperatures of 30°F or higher than outdoor ambient. Never attach a liquid line to any uninsulated portion of the suction line.

Do NOT let refrigerant lines come in direct contact with plumbing, ductwork, floor joists, wall studs, floors, and walls. When running refrigerant lines through a foundation or wall, openings should allow for sound and vibration absorbing material to be placed or installed between tubing and foundation. Any gap between foundation or wall and refrigerant lines should be filled with a pliable silicon-based caulk, RTV or a vibration

damping material. Avoid suspending refrigerant tubing from joists and studs with rigid wire or straps that would come in contact with the tubing. Use an insulated or suspension type hanger. Keep both lines separate and always insulate the suction line.

Insulation is necessary to prevent condensation from forming and dropping from the suction line. Insulation tube with 3/8" min. wall thickness is recommended. In severe conditions (likely to exceed 86°F and a relative humidity of 80%) 1/2" insulation may be required. Insulation must be installed in a manner which protects tubing and connections from damage and contamination.

Please use a HVAC flushing solvent to clean lineset of any oil or debris from the existing system.

NOTE: If changing refrigerant, the indoor coil and metering device must be replaced.

Cond Unit Tons	Allowable line set diameter				
	Liquid		Suction		
	1/4	3/8	5/8	3/4	7/8
1.5	x	x	x*	x	
2		x	x*	x	
2.5		x		x*	x
3		x		x*	x

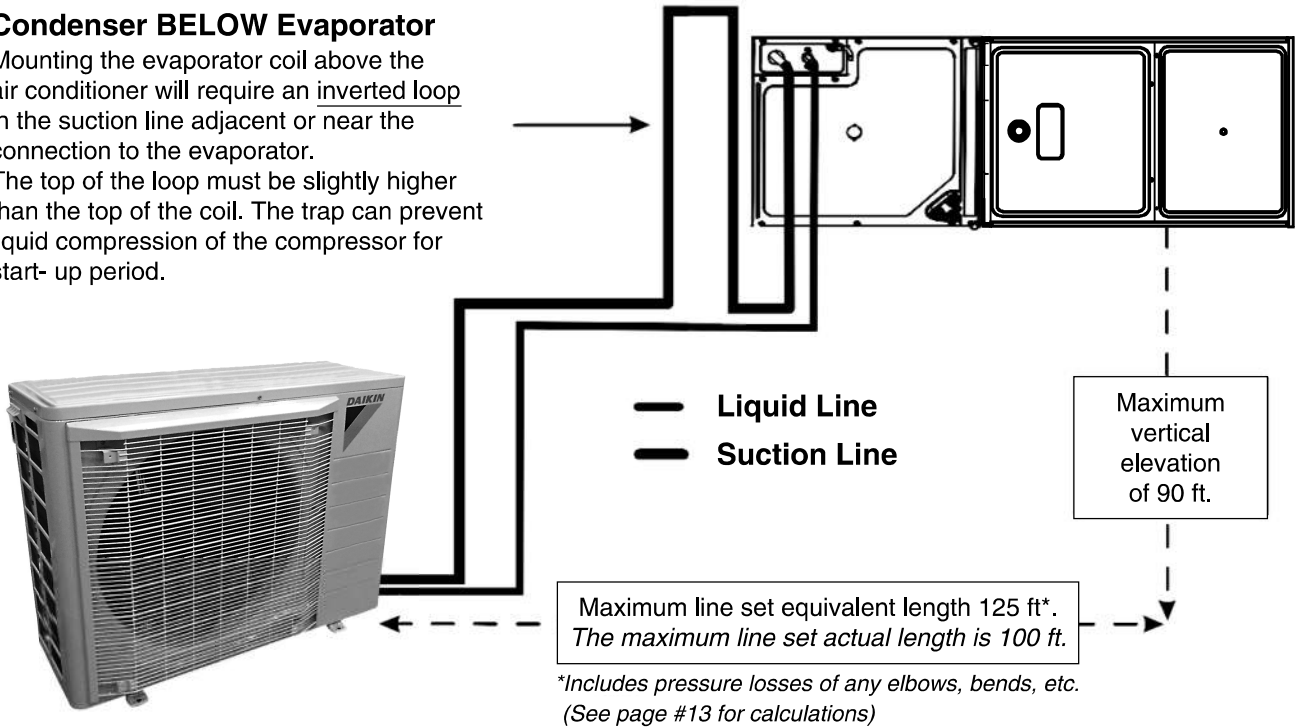
x: Allowable combination

*: For marked combinations, if normal ambient operation temperature is less than 14°F, limit line set length to 50 ft. max.

Condenser BELOW Evaporator

Mounting the evaporator coil above the air conditioner will require an inverted loop in the suction line adjacent or near the connection to the evaporator.

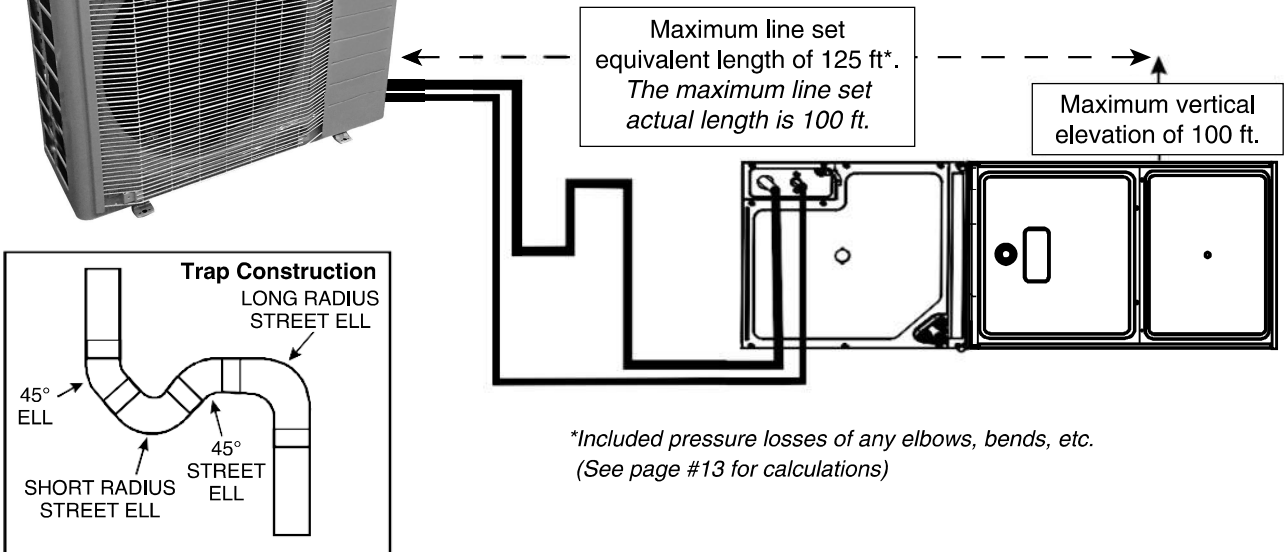
The top of the loop must be slightly higher than the top of the coil. The trap can prevent liquid compression of the compressor for start-up period.



Condenser ABOVE Evaporator

Mounting the air conditioner above the evaporator coil will require an oil trap that is vertically centered between the air conditioner and indoor unit the vertical elevation exceeds 80 ft.

The trap can be constructed from standard refrigerant fittings as shown in the figure (bottom left).



REFRIGERANT LINE CONNECTIONS

IMPORTANT

To avoid overheating the service valve, sensors, or filter drier while brazing, wrap the component with a wet rag, or use a thermal heat trap compound. Be sure to follow the manufacturer's instruction when using the heat trap compound.

Note: Remove Schrader valves from service valves before brazing tubes to the valves. Use a brazing alloy of 2% minimum silver content. Do not use flux.

Torch heat required to braze tubes of various sizes is proportional to the size of the tube. Tubes of smaller size require less heat to bring the tube to brazing temperature before adding brazing alloy. Applying too much heat to any tube can melt the tube. Service personnel must use the appropriate heat level for the size of the tube being brazed.

NOTE: The use of a heat shield when brazing is recommended to avoid burning the serial plate or the finish on the unit.

1. The ends of the refrigerant lines must be cut square, deburred, cleaned, and be round and free from nicks or dents. Any other condition increases the chance of a refrigerant leak.
2. Purge with nitrogen at 2 to 3 psig during brazing to prevent the formation of copper-oxide inside the refrigerant lines. The PVE oils used in R-410A applications will clean any copper-oxide present from the inside of the refrigerant lines and spread it throughout the system. This may cause a blockage or failure of the metering device.
3. After brazing, quench the joints with water or a wet cloth to prevent overheating of the service valve.
4. A bi-flow filter drier is shipped with the unit as a separate component and must be brazed on by the installer on-site. Ensure the bi-flow filter drier paint finish is intact after brazing. If the paint of the steel filter drier has been burned or chipped, repaint or treat with a rust inhibitor.

The recommended location of the filter drier is before the expansion device at the indoor unit.

NOTE: Be careful not to kink or dent refrigerant lines. Kinked or dented lines will cause poor performance or compressor damage.

Do NOT make final refrigerant line connection until plugs are removed from refrigerant tubing.

LEAK TESTING (NITROGEN OR NITROGEN-TRACED)



WARNING

TO AVOID THE RISK OF FIRE OR EXPLOSION, NEVER USE OXYGEN, HIGH PRESSURE AIR OR FLAMMABLE GASES FOR LEAK TESTING OF A REFRIGERATION SYSTEM.



WARNING

TO AVOID POSSIBLE EXPLOSION, THE LINE FROM THE NITROGEN CYLINDER MUST INCLUDE A PRESSURE REGULATOR AND A PRESSURE RELIEF VALVE. THE PRESSURE RELIEF VALVE MUST BE SET TO OPEN AT NO MORE THAN 150 PSIG.

To locate leaks, pressure test the system using dry nitrogen or leak detector fluid per Daikin's recommendation. If you wish to use a leak detector.

- Charge the system to 10 psi using the appropriate refrigerant.
- Use nitrogen to finish charging the system to working pressure.
- Apply the detector to suspect areas.

If leaks are found, repair them. After repair, repeat the pressure test. If no leaks exist, proceed to **System Start-up Procedure**.

SYSTEM START-UP PROCEDURE

GENERAL NOTES:

Adequate refrigerant charge for the matching indoor coil and line set is supplied with the air conditioner. If liquid line set exceeds factory charge length, refrigerant should be added at 0.6 ounce (Liquid line diameter 3/8") or 0.23 ounce (Liquid line diameter 1/4") of refrigerant per foot of liquid line.

NOTICE

VIOLATION OF EPA REGULATIONS MAY RESULT IN FINES OR OTHER PENALTIES.

NOTICE

ALL UNITS SHOULD HAVE A HIGH VOLTAGE POWER SUPPLY CONNECTED 2 HOURS PRIOR TO STARTUP.



WARNING

REFRIGERANT UNDER PRESSURE!

- DO NOT OVERCHARGE SYSTEM WITH REFRIGERANT.
 - DO NOT OPERATE UNIT IN A VACUUM OR AT NEGATIVE PRESSURE.
- FAILURE TO FOLLOW PROPER PROCEDURES MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



CAUTION

OPERATING THE COMPRESSOR WITH THE SUCTION VALVE CLOSED WILL CAUSE SERIOUS COMPRESSOR DAMAGE - SUCH DAMAGE IS NOT COVERED BY OUR WARRANTIES.

**CAUTION**

USE REFRIGERANT CERTIFIED TO AHRI STANDARDS. USED REFRIGERANT MAY CAUSE COMPRESSOR DAMAGE, AND IS NOT COVERED UNDER THE WARRANTY. MOST PORTABLE MACHINES CANNOT CLEAN USED REFRIGERANT TO MEET AHRI STANDARDS.

START-UP PROCEDURE DETAIL

Air conditioner liquid and suction valves are closed to contain the charge within the unit. The unit is shipped with the valve stems closed and caps installed. **Do not open valves until the indoor coil and line set is evacuated.**

**CAUTION**

PROLONGED OPERATION AT SUCTION PRESSURES LESS THAN 20 PSIG FOR MORE THAN 5 SECONDS WILL RESULT IN OVERHEATING OF THE COMPRESSOR AND MAY CAUSE PERMANENT DAMAGE TO IT.

1. Connect the vacuum pump with 250 micron capability to the service valves.
2. Evacuate the system to 500 microns or less using suction and liquid service valves. Using both valves is necessary.
3. Close pump valve and hold vacuum for 10 minutes. Typically pressure will rise during this period.
 - If the pressure rises to 500 microns or less and remains steady the system is considered leak-free; proceed to start-up.
 - If pressure rises above 500 microns moisture and/or noncondensibles may be present or the system may have a small leak. Return to step 2: If the same result is encountered check for leaks as previously indicated and repair as necessary then repeat evacuation.
 - If pressure rises above 500 microns, a leak is present. Check for leaks as previously indicated and repair as necessary then repeat evacuation.

ELECTRICAL CONNECTIONS**WARNING****HIGH VOLTAGE!**

DISCONNECT ALL POWER BEFORE SERVICING. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO ELECTRIC SHOCK. WIRING MUST CONFORM WITH NEC OR CEC AND ALL LOCAL CODES. UNDERSIZED WIRES COULD CAUSE POOR EQUIPMENT PERFORMANCE, EQUIPMENT DAMAGE OR FIRE.

**WARNING**

TO AVOID THE RISK OF FIRE OR EQUIPMENT DAMAGE, USE COPPER CONDUCTORS.

**CAUTION****GROUNDING REQUIRED!**

ALWAYS INSPECT AND USE PROPER SERVICE TOOLS. LACK OF INSPECTION OR IMPROPER TOOLS MAY CAUSE EQUIPMENT DAMAGE OR PERSONAL INJURY. ALL DISCONNECTED GROUNDING DEVICES **MUST** BE RECONNECTED BEFORE INSTALLING OR SERVICING. MULTIPLE COMPONENTS OF THIS UNIT MAY CONDUCT ELECTRICAL CURRENT; THESE ARE GROUNDED. IF SERVICING THE UNIT, ANY DISCONNECTION OF GROUNDING WIRES, SCREWS, STRAPS, CLIPS, NUTS OR WASHERS USED TO COMPLETE THE GROUND **MUST** BE RETURNED TO THEIR ORIGINAL POSITION AND PROPERLY FASTENED.

NOTICE

- NEVER INSTALL A PHASE-ADVANCING CAPACITOR. AS THIS UNIT IS EQUIPPED WITH AN INVERTER, INSTALLING A PHASE-ADVANCING CAPACITOR WILL NOT ONLY DETERIORATE POWER FACTOR IMPROVEMENT EFFECT, BUT ALSO MAY CAUSE CAPACITOR ABNORMAL HEATING ACCIDENT DUE TO HIGH-FREQUENCY WAVES.
- DO NOT CHANGE THE SETTING OF THE PROTECTION DEVICES. IF THE PRESSURE SWITCH, THERMAL SWITCH, OR OTHER PROTECTION DEVICE IS SHORTED AND OPERATED FORCIBLY, OR PARTS OTHER THAN THOSE SPECIFIED BY DAIKIN ARE USED, FIRE OR EXPLOSION COULD RESULT.
- DO NOT CONNECT THE GROUND WIRE TO SUCTION LINE, SEWAGE PIPES, LIGHTNING RODS, OR TELEPHONE GROUND WIRES.

The air conditioner rating plate lists pertinent electrical data necessary for proper electrical service and overcurrent protection. Wires should be sized to limit voltage drop to 2% (max.) from the main breaker or fuse panel to the air conditioner. Consult the NEC, CEC, and all local codes to determine the correct wire gauge and length.


Local codes often require a disconnect switch located near the unit; do not install the switch on the unit.

OVERCURRENT PROTECTION

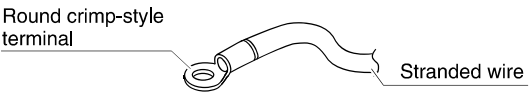
The inverter control system software provides sufficient time delay to protect from overcurrent conditions and permit the compressor and fan motors to adjust their rotational speed.

High Voltage Connections

Route power supply and ground wires through the high voltage port and terminate in accordance with the wiring diagram provided inside the black plastic cover over control box.

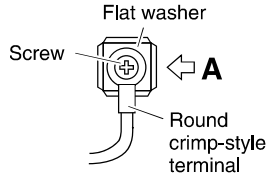

CAUTION

- **PRECAUTIONS TO BE TAKEN FOR POWER SUPPLY WIRING.**
WHEN USING STRANDED WIRES, MAKE SURE TO USE A ROUND CRIMP-STYLE TERMINAL FOR CONNECTION TO THE POWER SUPPLY TERMINAL BLOCK.
PLACE THE ROUND CRIMP-STYLE TERMINALS ON THE WIRES UP TO THE COVERED PART AND SECURE IN PLACE.



Round crimp-style terminal

Stranded wire

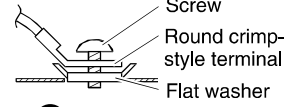


Flat washer

Screw

Round crimp-style terminal

A

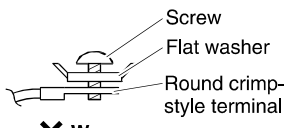


Screw

Round crimp-style terminal

Flat washer

Good



Screw

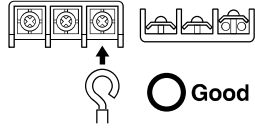
Flat washer

Round crimp-style terminal

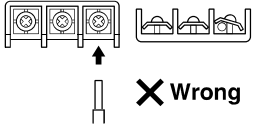
Wrong

Arrow view A

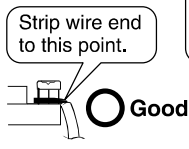
- **WHEN CONNECTING THE CONNECTION WIRES TO THE TERMINAL BLOCK USING A SINGLE CORE WIRE, BE SURE TO CURL THE END OF THE LEAD. IMPROPER WORK MAY CAUSE HEAT AND FIRES.**



Good

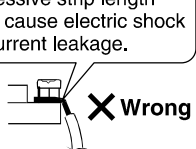


Wrong



Strip wire end to this point.

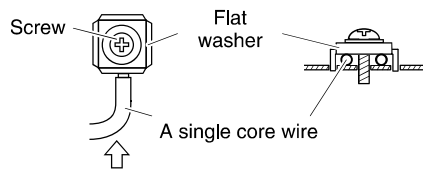
Good



Excessive strip length may cause electric shock or current leakage.

Wrong

- **USE THE FOLLOWING METHOD WHEN INSTALLING A SINGLE CORE WIRE.**

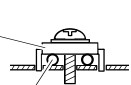


Screw

Flat washer

A single core wire

B



Wrong

Arrow view B

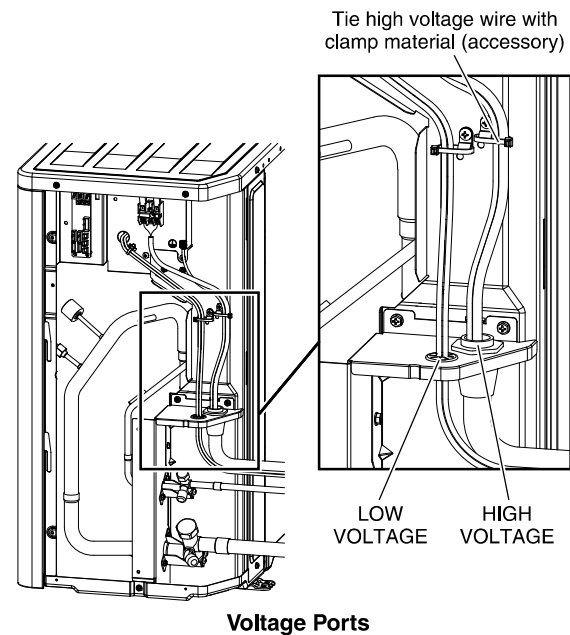
- Make sure to apply the rated voltage of 208/230V for the unit.
- A power circuit (see the following table) must be provided for connection of the unit. This circuit must be protected with the required safety devices.

- When using residual current operated circuit breakers, be sure to use a high-speed type (0.1 seconds or less) 200 mA rated residual operating current.
- Use copper conductors only.
- Use insulated wire for the power cord.
- Select the power supply cable type and size in accordance with relevant local and national regulations.

MODEL NAME	Phase and frequency	Voltage	MCA (Min. circuit amp.)	MOP (Max. overcurrent protective device)	Transmission line selection
DX17VSS181AA	1 Phase 60Hz	208/230V	12.7 A	15 A	18 AWG (typical)
DX17VSS241AA			17.4 A	20 A	
DX17VSS301AA			22.7 A	25 A	
DX17VSS361AA			22.7 A	25 A	

Low Voltage Connections

The unit is designed to work as part of a fully communicating HVAC system, utilizing a ComfortNet™ CTK04 thermostat, ComfortNet compatible indoor unit, and up to four wires. Route control wires through the low voltage port and terminate in accordance with the wiring diagram provided inside the top plate.



NOTE: The communicating thermostat is able to search and identify the indoor and outdoor units when power is applied to the system. Refer to the communicating thermostat's installation instruction manual for more information.

Connect low voltage communication wires (1, 2) to low voltage pigtail provided.

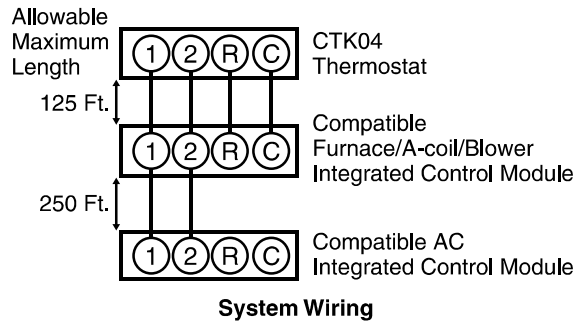
COMMUNICATION WIRING

NOTE: A removable plug connector is provided with the control board to make thermostat wire connections. This plug may be removed, wire connections made to the plug, and replaced. It is **STRONGLY** recommended that you do not connect multiple wires into a single terminal.

Typical 18 AWG wire may be used to wire the system components. However, communications reliability may be improved by using a high quality, shielded, twisted pair cable for the data transmission lines.

Two-Wire Outdoor, Four-Wire Indoor Wiring

Low voltage wiring consists of two wires between the indoor unit and outdoor unit and four wires between the indoor unit and thermostat. The required wires are data lines 1 and 2, "R" (24 VAC hot) and "C" (24 VAC common). Never connect the power wiring to communication terminal. (1, 2, R, C)



ATTENTION INSTALLER - IMPORTANT NOTICE!

Please read carefully before installing this unit.

- For DX17VSS, do NOT install the 24 Volt Transformer that is included with the **CTK04** Thermostat.
- Do not attach any wires to the R & C Terminals on the Air Conditioner, as they are not needed for inverter unit.
- Data line terminal #1 from outdoor unit must connect to terminal #1 on indoor unit and thermostat and data line terminal #2 from outdoor unit must connect to terminal #2 on indoor unit and thermostat. *Verify wires are not reversed.*

STEP 1. CALCULATE REFRIGERANT CHARGE BASED ON LINE SET LENGTH

The condenser unit is shipped with a predetermined factory charge level as shown below. For longer line sets greater than 15 ft., with CAPEA or 12 ft. with CHPE (Detail shown in tables on page 12) add 0.6 ounce (Liquid line diameter 3/8") or 0.23 ounce (Liquid line diameter 1/4") of refrigerant per foot. Refer to the following page for the equivalent length of the elbow fittings.

Total Refrigerant (A)	=	Factory Charge (B)	+	Additional Charge (C) [For liquid Line (C)-1] – [Adjust amount from suction line (C)-2]
------------------------------	---	---------------------------	---	--

(A) to (C) parameters are calculated/followed below.

(A) There is 2 way calculation for total refrigerant amount

- (A)-1 Select line set length from (A)-1 table. If suction line diameter is different from (A)-1 table, then adjust suction line refrigerant by using (C)-2 factors.
- (A)-2 Calculate from above formula by using (B), (C)-1 and (C)-2 factors.

(B) Pick up from name plate which has factory charge amount.

(C) Calculate above formula. (C)-1 and (C)-2 shown below.

Subtract factory charge length (see (A)-1 Table) from the overall length and put the results in ft.

Additional Charge for liquid line (C)-1	=	(in case of 3/8" liquid line) <input type="text"/> ft. x 0.6 oz. (in case of 1/4" liquid line) <input type="text"/> ft. x 0.23 oz.
---	---	---

Adjust among from suction line (C)-2	=	Check the suction line diameter and pick the adjust amount (oz.)
--------------------------------------	---	--

Charge Table for Total/Additional Refrigerant (A)-1 CAPEA Connection

	Unit Tonnage									
Actual Line Set Length (ft.)	1.5 Ton				2.0 Ton		2.5 Ton		3.0 Ton	
	Total/Additional refrigerant (oz.)									
Indoor UNIT	CAPEA									
Liquid Line Diameter (inch)	1/4"		3/8"		3/8"		3/8"		3/8"	
Suction Line Diameter (inch)	3/4"				3/4"		7/8"		7/8"	
Total/Additional	Total	Additional	Total	Additional	Total	Additional	Total	Additional	Total	Additional
15	n/a		76	0	76	0	79	0	85	0
20			79	3	79	3	82	3	88	3
25	76	0	82	6	82	6	85	6	91	6
30	77	1	85	9	85	9	88	9	94	9
35	78	2	88	12	88	12	91	12	97	12
40	79	3	91	15	91	15	94	15	100	15
45	81	5	94	18	94	18	97	18	103	18
50	82	6	97	21	97	21	100	21	106	21
55	83	7	100	24	100	24	103	24	109	24
60	84	8	103	27	103	27	106	27	112	27
65	85	9	106	30	106	30	109	30	115	30
70	86	10	109	33	109	33	112	33	118	33
75	88	12	112	36	112	36	115	36	121	36
80	89	13	115	39	115	39	118	39	124	39
85	90	14	118	42	118	42	121	42	127	42
90	91	15	121	45	121	45	124	45	130	45
95	92	16	124	48	124	48	127	48	133	48
100	93	17	127	51	127	51	130	51	136	51

Factory Charge

Charge Table for Total/Additional Refrigerant (A)-1 CHPE Connection

	Unit Tonnage									
Actual Line Set Length (ft.)	1.5 Ton				2.0 Ton		2.5 Ton		3.0 Ton	
	Total/Additional refrigerant (oz.)									
Indoor UNIT	CHPE									
Liquid Line Diameter (inch)	1/4"		3/8"		3/8"		3/8"		3/8"	
Suction Line Diameter (inch)	3/4"				3/4"		7/8"		7/8"	
Total/Additional	Total	Additional	Total	Additional	Total	Additional	Total	Additional	Total	Additional
12	n/a		76	0	76	0	79	0	85	0
15			78	2	78	2	81	2	87	2
20	76	0	81	5	81	5	84	5	90	5
25	77	1	84	8	84	8	87	8	93	8
30	78	2	87	11	87	11	90	11	96	11
35	79	3	90	14	90	14	93	14	99	14
40	81	5	93	17	93	17	96	17	102	17
45	82	6	96	20	96	20	99	20	105	20
50	83	7	99	23	99	23	102	23	108	23
55	84	8	102	26	102	26	105	26	111	26
60	85	9	105	29	105	29	108	29	114	29
65	86	10	108	32	108	32	111	32	117	32
70	88	12	111	35	111	35	114	35	120	35
75	89	13	114	38	114	38	117	38	123	38
80	90	14	117	41	117	41	120	41	126	41
85	91	15	120	44	120	44	123	44	129	44
90	92	16	123	47	123	47	126	47	132	47
95	93	17	126	50	126	50	129	50	135	50
100	94	18	129	53	129	53	132	53	138	53

Factory Charge

Charge Table for Adjusting charge from suction pipe size (C)-2

Actual Line Set Length (ft.)	Unit Tonnage			
	1.5 - 2.0 Ton		2.5 - 3.0 Ton	
	Adjust refrigerant (oz.)			
Suction Line Diameter (inch)	5/8"	6/8"	6/8"	7/8"
12-15	1	-	1	-
20-25	2	-	2	-
30-40	3	-	3	-
40-50	4	-	4	-
50-60	5	-	5	-
60-70	5	-	6	-
70-80	6	-	7	-
80-90	7	-	8	-
90-100	8	-	9	-

STEP 2. CONNECT AIR CONDITIONER TO SYSTEM



CAUTION

OPEN THE LIQUID VALVE FIRST!

IF THE SUCTION SERVICE VALVE IS OPENED FIRST, OIL FROM THE COMPRESSOR MAY BE DRAWN INTO THE INDOOR COIL, RESTRICTING REFRIGERANT FLOW AND AFFECTING OPERATION OF THE SYSTEM.



CAUTION

POSSIBLE REFRIGERANT LEAK!

TO AVOID A POSSIBLE REFRIGERANT LEAK, OPEN THE SERVICE VALVES UNTIL THE TOP OF THE STEM IS 1/8" FROM THE RETAINER.



CAUTION

ENSURE VALVES ARE OPEN AND ADDITIONAL CHARGE IS ADDED PER CHART BEFORE APPLYING POWER.

Charge additional refrigerant calculated by STEP formula & table from liquid service valve. (NOT from suction side.)

When opening service valves, open each valve only until the top of the stem is 1/8" from the valve. To avoid loss of refrigerant, DO NOT apply pressure to the retainer. When opening valves without a retainer, remove service valve cap and insert a hex wrench into the valve stem and back out the stem by turning the hex wrench counterclockwise.

After the refrigerant charge has bled into the system, open the liquid service valve. The service valve cap is the secondary seal for the valves and must be properly tightened to prevent leaks. Make sure cap is clean and apply refrigerant oil to threads and sealing surface on inside of cap. Tighten cap finger-tight and then tighten additional 1/6 of a turn to properly seat the sealing surfaces.

Break vacuum by fully opening liquid and suction base valve.

NOTE: Units have front seating valves. These are not back-seating valves. It is not necessary to force the stem tightly against the rolled lip.

EQUIVALENT LENGTH CALCULATION

NOTE: The following table lists the equivalent length gained from adding bends to the suction line. Properly size the suction line to minimize capacity loss.

Type of Elbow Fitting	Inside Diameter (inches)	
	3/4	7/8
90° short radius	1 3/4	2
90° long radius	1 1/2	1 3/4
45°	3/4	13/16

STEP 3. SYSTEM START-UP TEST

NOTICE

ON INITIAL POWER START-UP, THE OUTDOOR UNIT WILL DISPLAY CODE **E11**, SIGNALING THAT INITIAL **SYSTEM TEST** MUST BE RUN. FOLLOW THE **COMFORTNET™** SETUP SCREEN TO ENTER APPLICATION-UNIQUE INFORMATION. SEE **COMFORTNET THERMOSTAT MANUAL** FOR DETAILED INFORMATION.

A system test is now required to check the equipment settings and functionality. Once selected, it checks the equipment for approximately 10 - 15 minutes. System test may exceed 15 minutes if there is an error. Refer to the Troubleshooting section, if error code appears.

Before starting the **SYSTEM TEST**, turn off the electric heater or gas furnace.

1. Ensure the thermostat is installed.
2. Apply power to outdoor and indoor units.
3. **Start-up.**

After the application information is entered, the initial system test must be run.

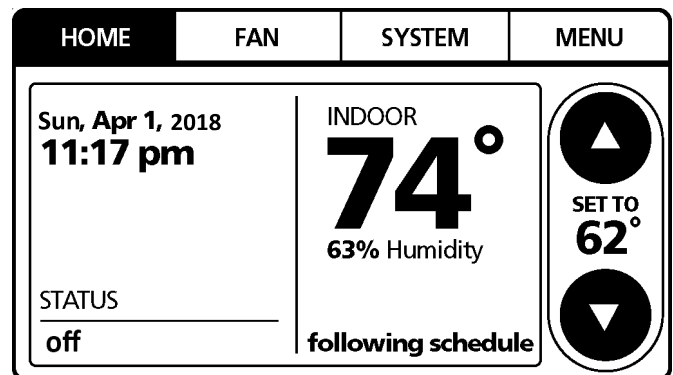
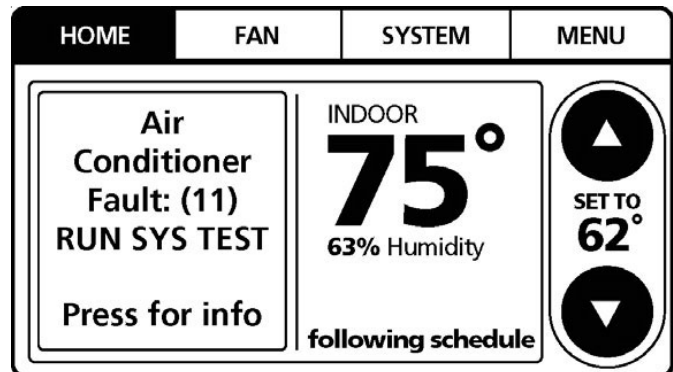
The "HOME" screen will be displayed showing information similar to one of the adjacent screens.

Select "MENU". Make sure the thermostat is in "OFF" and select "SYSTEM" menu. Choose "OFF" before "SYSTEM TEST".

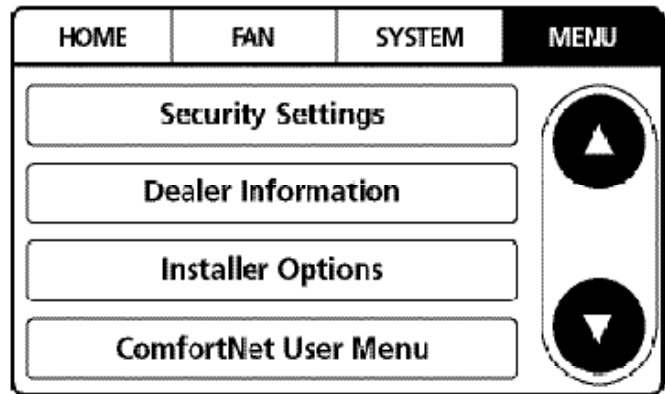
NOTE:

"SYSTEM TEST" must be run for all installations.

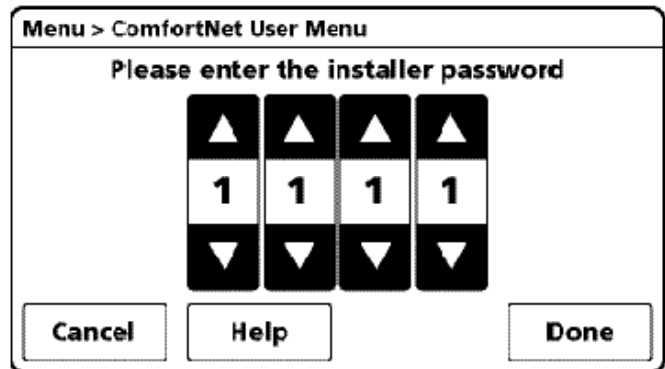
System will not operate without a completed initial "SYSTEM TEST".



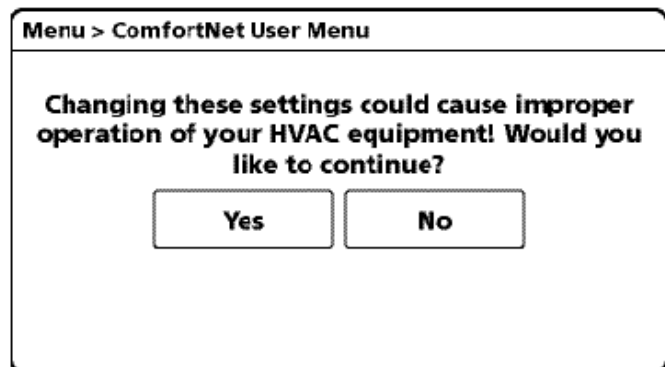
4. From the "MENU" screen, scroll down and select "ComfortNet User Menu".



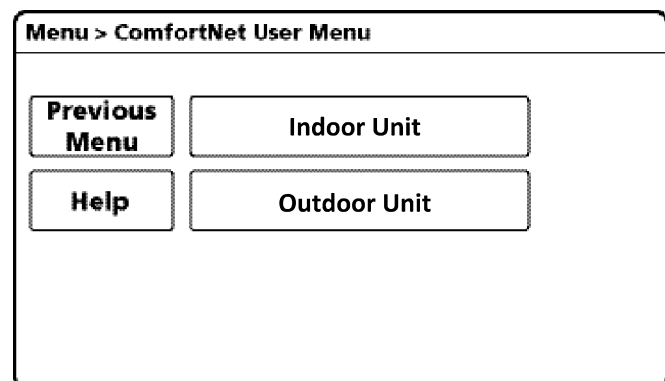
5. Enter Installer password. (The password is the Date Code located on the thermostat and is available by entering the "EQUIPMENT STATUS" menu and scrolling to the bottom.)



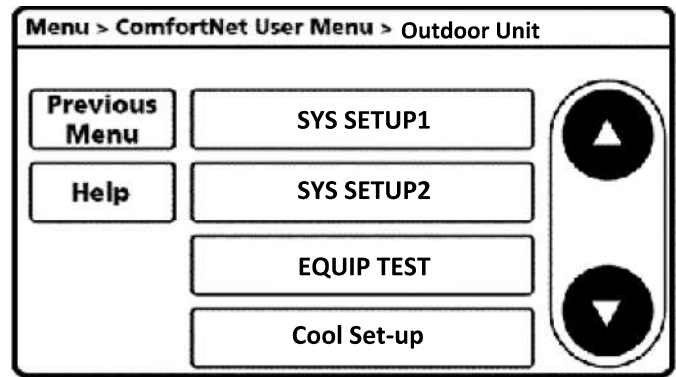
6. Confirm message, then select "YES" to continue.



7. From the "ComfortNet User Menu", select "Outdoor Unit".

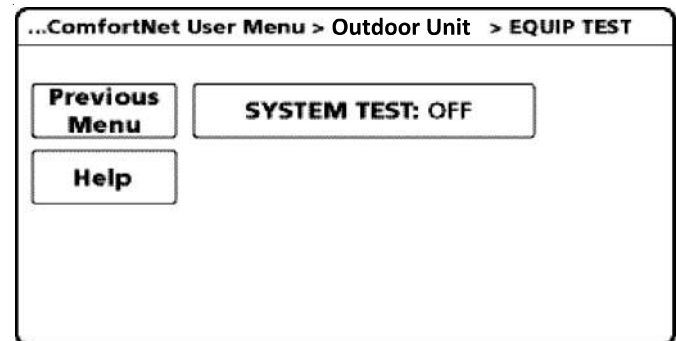


8. Next, scroll down and select “EQUIP TEST”.

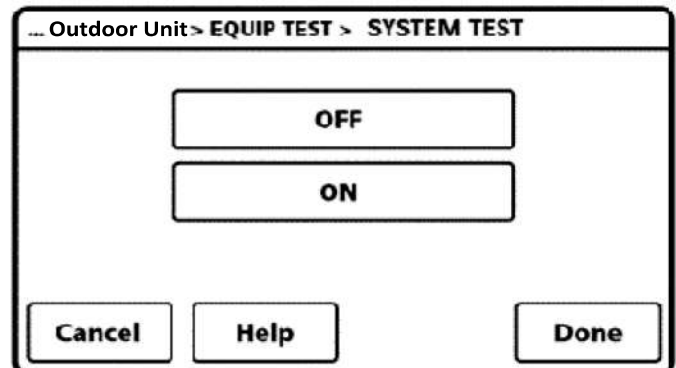


9. Select “SYSTEM TEST”.

NOTE: If unit has “E15” Error during system test, please check charging/leaking of refrigerant.



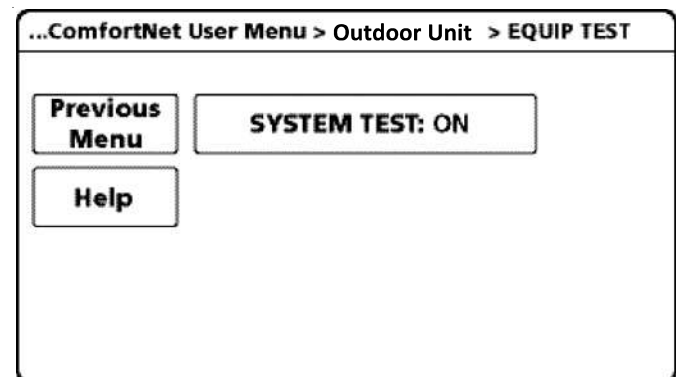
10. Select “ON” to run the “SYSTEM TEST”.
Press “DONE” to initiate test.



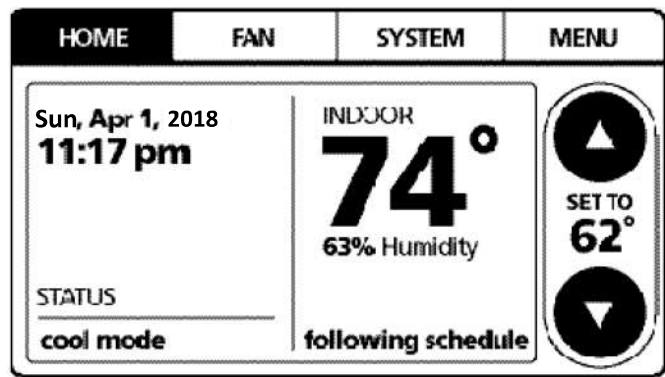
11. Allow the system test to run for its duration (10-15 minutes). “EQUIP TEST” screen will show the system test is “ON” once selected.

System test will operate the outdoor unit and the indoor unit through a series of startup tests.

Please proceed to the next step and allow for startup tests to complete. Do not interrupt power to outdoor unit, indoor unit, or thermostat during system test.



12. Press Previous Menu button and navigate to “HOME” screen and allow test to finish. The display similar to the one at the right will be displayed after “SYSTEM TEST” completes. Test is complete only when “CODE 11” notice clears from BOTH the thermostat display AND the seven segment LED display on the outdoor unit. Please wait for test to complete and for both codes to clear.



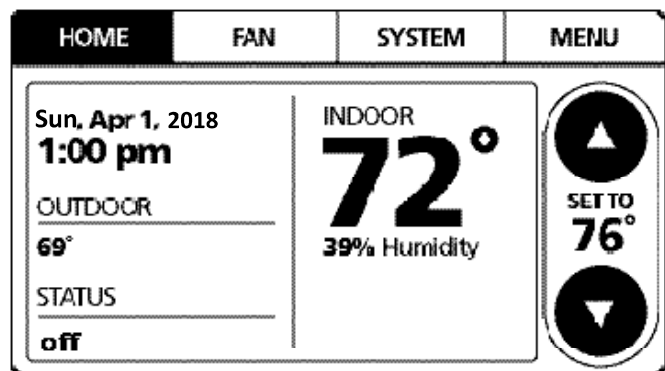
STEP 4. SET THERMOSTAT TO CHARGE MODE

If required additional charging amount cannot be charged to the system without operation, then use this “CHARGE MODE”. Please follow the following sequence to enter CHARGE MODE.

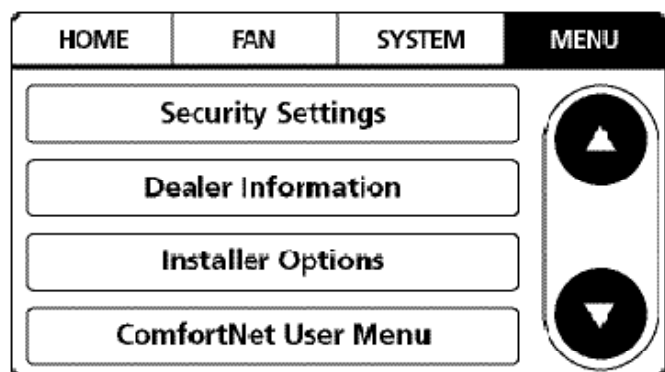
CHARGE MODE allows for charging of the system. System operates for a duration of approximately one hour while the equipment runs at full capacity. After one hour, the CHARGE MODE ends and the system resumes normal thermostat operation.

Before starting the CHARGE MODE, turn off the electric heater.

1. On the “HOME” screen, select “MENU”.
NOTE: Ensure the thermostat is in OFF. Select “SYSTEM” menu. Choose “OFF” before “CHARGE MODE”.



2. From the “MENU” screen, select “ComfortNet User Menu”.



3. Enter Installer password. (The password is the Date Code located on the thermostat and is available by entering the "EQUIPMENT STATUS" menu and scrolling to the bottom).

Menu > ComfortNet User Menu

Please enter the installer password

▲	▲	▲	▲
1	1	1	1
▼	▼	▼	▼

Cancel Help Done

4. Confirm message, then select "YES" to continue.

Menu > ComfortNet User Menu

Changing these settings could cause improper operation of your HVAC equipment! Would you like to continue?

Yes No

5. Select "Outdoor Unit".

Menu > ComfortNet User Menu

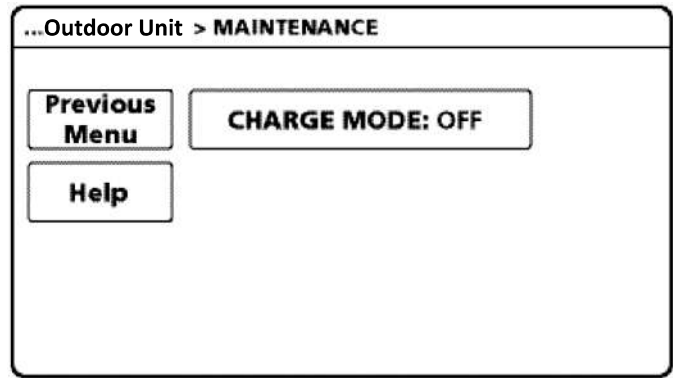
Previous Menu	Indoor Unit
Help	Outdoor Unit

6. Select "MAINTENANCE".

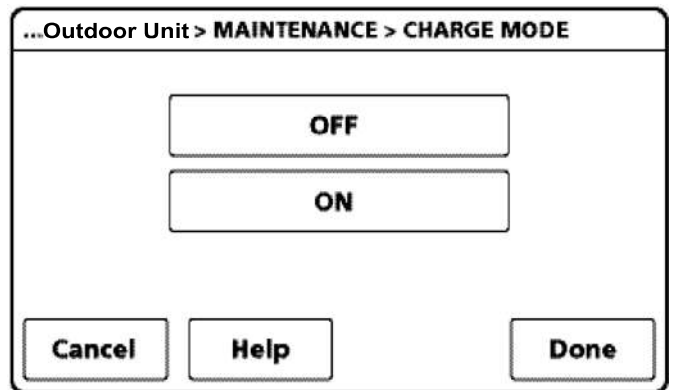
Menu > ComfortNet User Menu > Outdoor Unit

Previous Menu	SYS SETUP1	▲ ▼
Help	SYS SETUP2	
	EQUIP TEST	
	Cool Set-up	

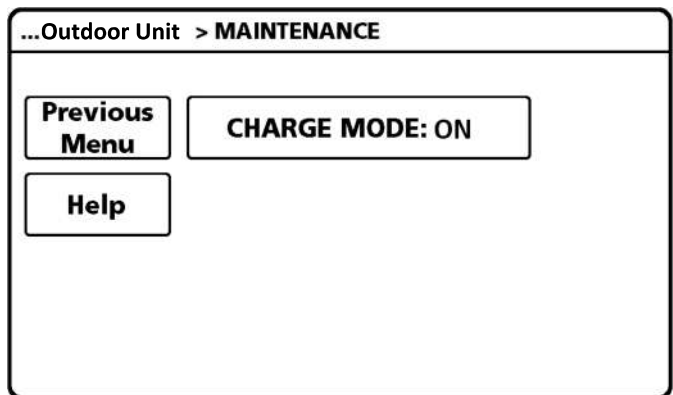
7. Select "CHARGE MODE".



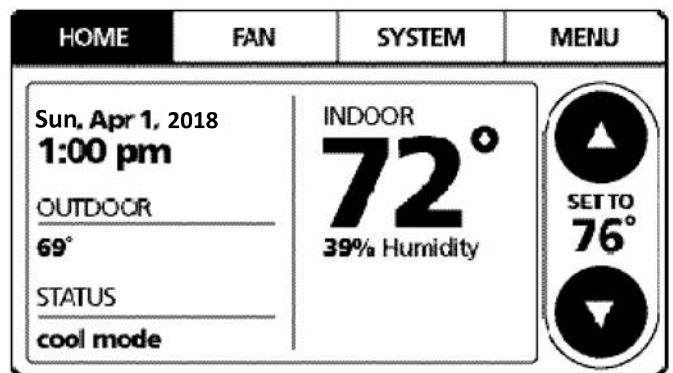
8. Select "ON". Press "DONE" to initiate CHARGE MODE. If charging is not complete after 1 hour, repeat 7. and 8. Refer to STEP 5 and STEP 6 for refrigerant charge level adjustment. System will then run for 1 hour and either return to cooling mode.



9. To terminate "CHARGE MODE", select "CHARGE MODE" screen again. Press "OFF". Press "DONE" to terminate CHARGE MODE.



10. Once CHARGE MODE is complete and has been terminated, navigate to "HOME" screen. Enter normal operation with temperature offset or thermostat schedule, as desired.



STEP 5. ADJUST REFRIGERANT LEVEL

Using service equipment, add or recover refrigerant according to the calculation in Step 1. Allow system to stabilize for 20 minutes after adjusting charge level.

STEP 6. MEASURE SUBCOOLING TO VERIFY PROPER CHARGE

If want to adjust charging by checking “Subcooling”, please follow below.

NOTE: Charging equipment must use dedicated PVE oil gauges and hoses.

1. Purge gauge lines.
2. Connect service gauge manifold to liquid base valve service ports.
3. Convert the liquid pressure to temperature using a temperature/pressure chart.
4. Temporarily install a thermometer on the liquid line at the liquid line service valve.
Ensure the thermometer makes adequate contact and is insulated for best possible readings.
5. Subtract the liquid line temperature from the converted liquid pressure to determine subcooling.

6. Before starting the subcooling adjustment, make sure the outdoor ambient temperature is in a below range and the unit is operating at 100% capacity.

If the unit is operating at 100% capacity which is ready for charge by subcooling, seven segments will light up as “cha”.

But, if the unit is not operating at 100% capacity which is not ready for charging, seven segments will flush as “cha”.

7. If the system subcooling is not within the range as shown in the following table, adjust subcooling according to the following procedure.
 - a. If subcooling is low, add charge to adjust the subcooling as specified in the following table.
 - b. If subcooling is high, remove charge to lower the subcooling to below charging table value.

SUBCOOLING = (SAT. LIQUID TEMP.) - (LIQUID LINE TEMP.)

Charging Table

OD Ambient Temp (degF)	< 65 °F	65°F to 105°F	> 105 °F
Subcooling (degF)	Weigh in Charge	1.5 T - 10 ±1°F 2.0 T - 12 ±1°F 2.5 T - 10 ±1°F 3.0 T - 10 ±1°F	Weigh in Charge

Note: Subcooling information is valid only while the unit is operating at 100% capacity or 100% of compressor speed in CHARGE MODE. Compressor speed is displayed under STATUS menu in the thermostat.

NOTE: Not more than 3/8 lb. (6 oz.) of refrigerant be added to the system at a time to achieve the target subcooling. It is recommended adding 1 oz. refrigerant each time, then wait 10 minutes to stabilize the system.

NOTICE

CHECK THE SCHRADER PORTS FOR LEAKS AND TIGHTEN VALVE CORES, IF NECESSARY. INSTALL CAPS FINGER-TIGHT.

NOTICE

Do NOT ADJUST THE CHARGE BASED ON SUCTION PRESSURE.

SATURATED LIQUID PRESSURE TEMPERATURE CHART	
LIQUID PRESSURE PSIG	R-410A °F
200	70
210	73
220	76
225	78
235	80
245	83
255	85
265	88
275	90
285	92
295	95
305	97

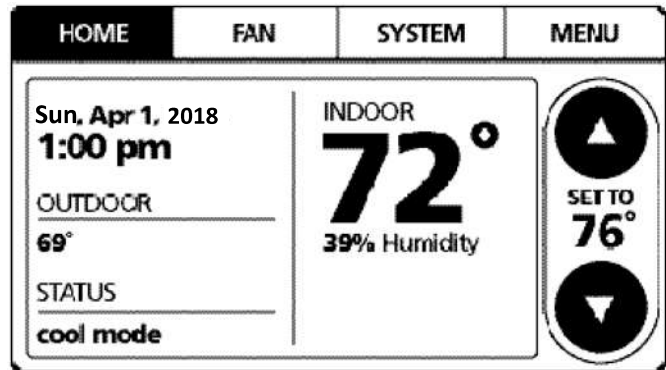
SATURATED LIQUID PRESSURE TEMPERATURE CHART	
LIQUID PRESSURE PSIG	R-410A °F
325	101
355	108
375	112
405	118
415	119
425	121
435	123
445	125
475	130
500	134
525	138
550	142

FIELD SELECTABLE BOOST MODE

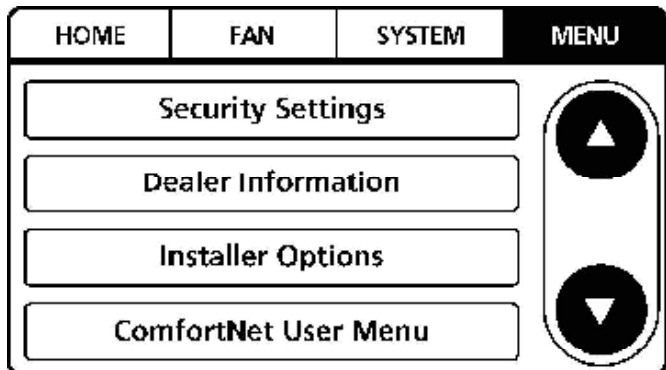
BOOST MODE enables the system to operate at increased compressor speeds to satisfy unusual high loads. BOOST MODE is initiated by an outdoor temperature sensor located in the outdoor unit. Please note that outdoor equipment operational sound levels may increase while the equipment is running in BOOST MODE. Disabling BOOST MODE will provide the quietest and most efficient operation.

NOTE: BOOST MODE is ON by default and is activated when the outdoor temperature reaches 100°F. BOOST MODE can be disabled and enabled and the activation temperature adjusted in “BOOST TEMP” menu using the following procedure:

1. On the “HOME” screen, select “MENU”.



2. From the “MENU” screen, select “ComfortNet User Menu”.



3. Enter Installer password if known.
 - a. The password is the thermostat date code and can be obtained by selecting the red Cancel button and selecting the Dealer Information button.
 - b. Once recorded, click the green “OK” button and return to the previous step.

Menu > ComfortNet User Menu

Please enter the installer password

A 4x2 grid of buttons for password entry. Each button contains an up arrow, the number '1', and a down arrow.

Buttons: Cancel, Help, Done

4. Confirm message, then select “YES” to continue.

Menu > ComfortNet User Menu

Changing these settings could cause improper operation of your HVAC equipment! Would you like to continue?

Buttons: Yes, No

5. Select “Outdoor Unit”.

Menu > ComfortNet User Menu

Buttons: Previous Menu, Indoor Unit, Help, Outdoor Unit

6. Select “SYS SETUP”.

Menu > ComfortNet User Menu > Outdoor Unit

Buttons: Previous Menu, SYS SETUP1, Help, SYS SETUP2, EQUIP TEST, Cool Set-up

Navigation arrows: Up arrow, Down arrow

7. “BOOST MD” turns BOOST MODE OFF or ON.
BOOST MODE is on by default.

...ComfortNet User Menu > Outdoor Unit > SYS SETUP

Previous Menu	SET MAX CURRENT: OFF	▲ ▼
Help	VERTICAL RISE: Outdoor Lower	
	BOOST MD: ON	
	BOOST TEMP: Always On	

English

...Outdoor Unit > SYS SETUP > BOOST MD

OFF		
ON		
Cancel	Help	Done

8. “BOOST TEMP” adjusts the activation temperature from 70° F to 105° F. “Always ON” option is also available to permanently engage BOOST MODE. Factory default is 100° F.

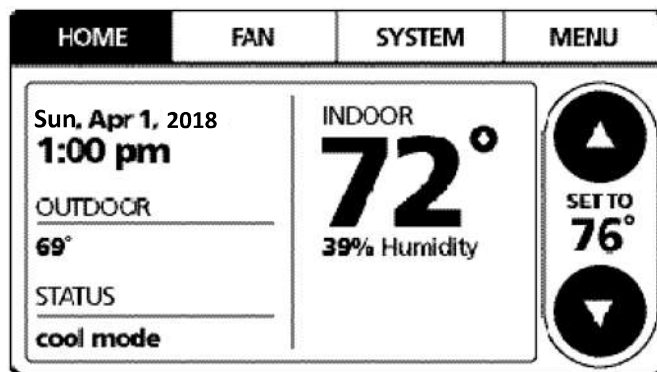
...ComfortNet User Menu > Outdoor Unit > SYS SETUP

Previous Menu	SET MAX CURRENT: OFF	▲ ▼
Help	VERTICAL RISE: Outdoor Lower	
	BOOST MD: ON	
	BOOST TEMP: 100F	

...Outdoor Unit > SYS SETUP > BOOST TEMP

Always On		
70F		
75F		
Cancel	Help	Done

9. Once satisfied with BOOST MODE adjustments, navigate to the “HOME” screen by selecting the Previous Menu button three times then selecting “HOME”.



DEHUMIDIFICATION

The thermostat reads the indoor humidity level from the CTK04 and allows the user to set a dehumidification target based on these settings. The thermostat controls the humidity level of the conditioned space using the cooling system. Dehumidification is engaged whenever a cooling demand is present and structural humidity levels are above the target level. When this condition exists the circulating fan output is reduced, increasing system run time, over cooling the evaporator coil and ultimately removing more humidity from the structure than if only in cooling mode. The CTK04 also allows for an additional overcooling limit setting from 0 °F to 3 °F setup through the Installer Option menu (direction below). This allows the cooling system to further reduce humidity by lowering the temperature up to 3° F below the cooling setpoint in an attempt to better achieve desired humidity levels.

By default, dehumidification needs to be turned ON at the thermostat via the Dehumidification Equipment menu. Dehumidification can be activated at the original equipment setup by selecting the A/C with “Low Speed Fan” button in the “Dehumidification” Menu. Availability can be verified by pressing “MENU” on the home screen. Scroll down and if a Dehumidification button is present dehumidification is activated.

If Dehumidification is not available in the menu then it must be enabled through the “Installer Options” menu. Use the following procedure to enable and disable dehumidification:

1. On the CTK04 HOME screen, select “MENU”.
2. From the “MENU” screen, scroll down and select “Installer Options”.
3. Enter installer password if known.
 - a. The password is the thermostat date code and can be obtained by selecting the red “Cancel” button and selecting the “Dealer Information” button.
 - b. Once recorded, click the green OK button and return to the previous step.
4. Select “YES” to continue.
5. Select “View / Edit Current Setup”.
6. Scroll down and select “Dehumidification”.
7. Once open, select “Dehumidification Equipment: None”.
8. From the Dehumidification Menu select “A/C with Low Speed Fan” and click the green “Done” button.

9. Additional Dehumidification operational options can be selected in the resulting window.
10. Once satisfied with the selection navigate to the “HOME” screen by selecting the “Done” button and selecting “Yes” to verify the changes.
11. Select “Previous Menu”, then “HOME” to return to the main menu.

DEHUMIDIFICATION TIPS

For effective dehumidification operation:

- Ensure “Dehum” is ON through the Installer Options menu and/or in the ComfortNet User Menu (COOL SETUP).
 - If ON, the Dehumidification menu should be visible in the main menu.
- Verify the cooling airflow profile is set to “Profile D”.
 - See the Cool Set-up section of the Installation Manual for complete airflow profile details.
 - By default “Dehum” is ON and the cooling airflow profile is set to “Profile D”.
- For additional dehumidification control, airflow settings are field adjustable and can be fine-tuned to a value that is comfortable for the application from a range of +15% to -15%.
 - See the Air Conditioner Advanced Feature Menu section of the Installation Manual for more detail.

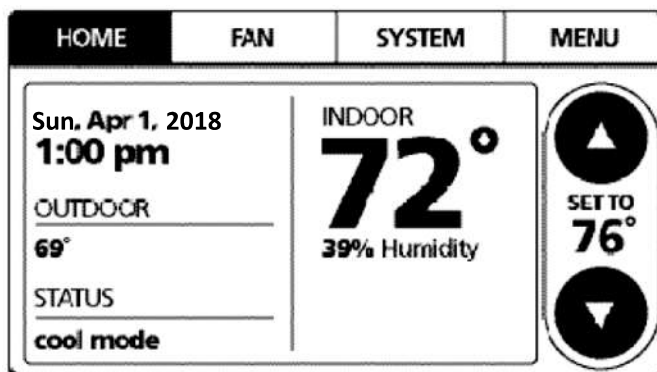
NIGHT MODE

FIELD SELECTABLE NIGHT MODE

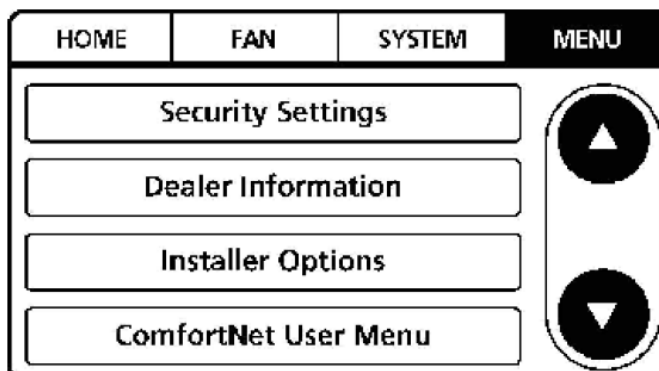
NIGHT MODE enables the system to operate at decreased compressor and fan speeds to satisfy quiet driving at night time.

NIGHT MODE is initiated by user's setting ("ON" or "OFF". Default is "OFF").

1. On the "HOME" screen, select "MENU".



2. From the "MENU" screen, select "ComfortNet User Menu"



3. Enter Installer password if known.
 - a. The password is the thermostat date code and can be obtained by selecting the red “Cancel” button and selecting “the Dealer Information” button.
 - b. Once recorded, click the green “OK” button and return to the previous step.

Menu > ComfortNet User Menu

Please enter the installer password

▲	▲	▲	▲
1	1	1	1
▼	▼	▼	▼

Cancel Help Done

4. Confirm message, then select “YES” to continue.

Menu > ComfortNet User Menu

Changing these settings could cause improper operation of your HVAC equipment! Would you like to continue?

Yes No

5. Select “Outdoor Unit”

Menu > ComfortNet User Menu

Previous Menu Indoor Unit

Help Outdoor Unit

6. Select “SYS SET UP2”

Menu > ComfortNet User Menu > Outdoor Unit

Previous Menu SYS SETUP1

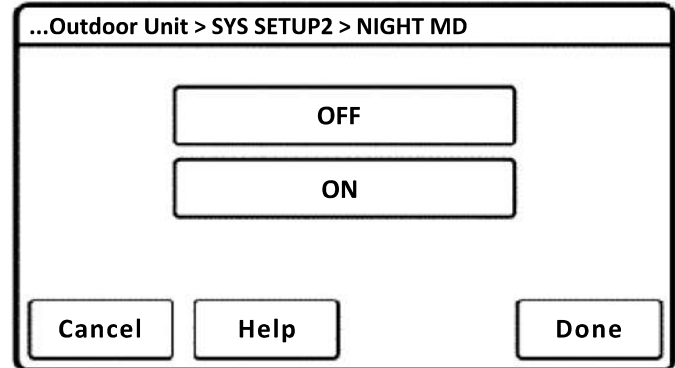
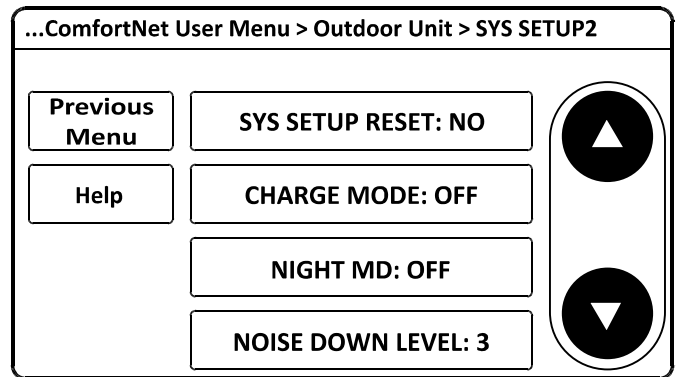
Help SYS SETUP2

EQUIP TEST

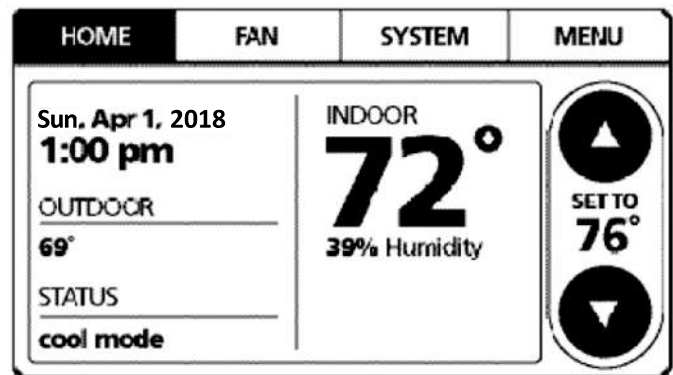
Cool Set-up

▲ ▼

7. "NIGHT MD" turns NIGHT MODE "ON" or "OFF". NIGHT MODE is "OFF" by default.



8. Once satisfied with NIGHT MODE adjustments, navigate to the "HOME" screen by selecting the "Previous Menu" button three times then selecting "HOME".



NOTE:

"NOISE DOWN LEVEL" is initiated by user's setting.

("LEVEL" "1", "2" or "3". Default is "LEVEL" "2". "LEVEL" "3" is the most quite.)

NIGHT MODE start time can be adjusted up to +4 hours per hour from default setting. Also ended time can be adjusted up to -4 hours per hour from default setting. Default time is determined by outdoor unit inner clock and logic. Adjustment of start/end may be needed for some region and time zone.

If during operation the capacity demand is high, then the night mode function will be temporary off by capacity priority function to return the room temperature to the set point. (Default is ON)

COMFORTNET™ SYSTEM

OVERVIEW

A ComfortNet inverter heating and air conditioning system uses an indoor unit, outdoor unit and thermostat which digitally communicate with one another via a two-way communications path. The thermostat sends commands to the indoor and outdoor units. The thermostat may request and receive information from both the indoor and outdoor units. This information may be displayed on the CTK04 thermostat. The indoor and outdoor units also interact with one another. The outdoor unit may send commands to or request information from the indoor unit. This two-way digital communication between the thermostat and subsystems (indoor/outdoor unit) and between subsystems is the key to unlocking the benefits and features of the ComfortNet system.

Two-way digital communication is accomplished using only two wires. The thermostat needs 24 VAC for power. 4 wires between the indoor unit and thermostat plus two wires between the indoor unit and outdoor unit are all that are required to operate the system.

COMFORTNET SYSTEM ADVANCED FEATURES

The ComfortNet™ system permits access to additional system information, advanced set-up features, and advanced diagnostic/troubleshooting features. These advanced features are organized into a menu structure. See the “**AIR CONDITIONER ADVANCED FEATURES MENU**” section for the menu layout.

DIRECTIONS TO AIR CONDITIONER ADVANCED FEATURE MENUS

Press “**MENU**”, scroll down and press “**COMFORTNET USER MENU**”. Enter the date code (password) when prompted. The date code is printed on the back of the thermostat; or press “**MENU > EQUIPMENT STATUS**” and scroll down to find the date code. After you enter the password, select “**COMFORTNET USER MENU**”, answer “**YES**” to the following menu and select “**AIR CONDITIONER**” to view the system menus.

DIAGNOSTICS

The air conditioner’s diagnostics menu provides access to the most recent faults. The six most recent faults are displayed on the first screen. Faults are stored in order from most recent to least recent. Any consecutively repeated fault is stored a maximum of three times. Example: A leak in the system, low refrigerant charge or an incompletely open stop valve can cause the unit to flash error code E15. This error code suggests that the unit is experiencing operation at low pressure. The control will only store this fault the first three *consecutive* times the fault occurs.

NOTE: It is highly recommended that the fault list be cleared after performing maintenance or servicing the system.

STATUS

This menu displays information about the systems current status. This menu can be utilized to confirm correct functionality of the equipment and for troubleshooting purposes. The following items will be displayed:

TS	Time Stamp
MD	Mode
CRM	Compressor Reduction Mode
RAD	Requested and Actual % Demand
RAF	Requested and Reported ID CFM
ATOF	Outdoor Air Temperature and Outdoor Fan RPM
DCT	Discharge Temperature and Outdoor Coil Temperature
DLT	Outdoor Liquid Temperature
PSDST	Pressure Sensor and Outdoor Suction Temperature

Time Stamp: Provides compressor run time in hours.

Mode: Current system operational mode (COOLING, COOLING STARTUP, OIL RETURN, STOP).

Compressor Reduction Mode: The compressor is running at a speed lower than what is requested, based on the cooling load.

Requested and Actual % Demand: Compares the requested cooling demand to what the equipment is providing. For steady state operation, these number should match.

Requested and Reported ID CFM: Compares the requested indoor airflow to what the indoor equipment has reported.

Outdoor Air Temperature and Outdoor Fan RPM: Displays the outdoor air temperature as well as the outdoor fan speed (RPM).

Discharge Temperature and Outdoor Coil Temperature: Displays the discharge temperature and outdoor coil temperature sensor readings.

Outdoor Liquid Temperature: Displays Outdoor liquid temperature sensor readings.

Pressure Sensor and Outdoor Suction Temperature: Displays the pressure sensor and outdoor suction temperature sensor reading.

NOTE: Oil Return Mode: In order to properly return oil to the compressor, compressor speed may periodically be adjusted to assist oil circulation.

MAINTENANCE

Charge modes can be enabled within this menu.

SYSTEM SETUP

This menu allows for the setting of BOOST MODE and NIGHT MODE. BOOST MODE enables the system to operate at a higher compressor speed than maximum compressor speed. NIGHT MODE enables the system to operate at decreased compressor and fan speeds.

BOOST MODE temperature can be adjusted in "BOOST TEMP" menu. When ambient temperature gets higher than BOOST MODE temperature, the system will operate in BOOST MODE.

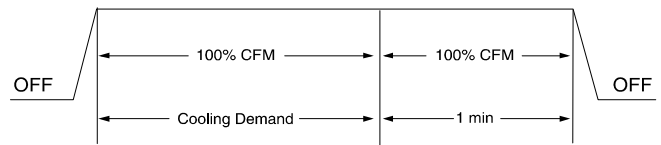
EQUIPMENT TEST

The mandatory system verification test is enabled from this menu, which enables a functional check of the equipment, in addition to ensuring proper stop valve position.

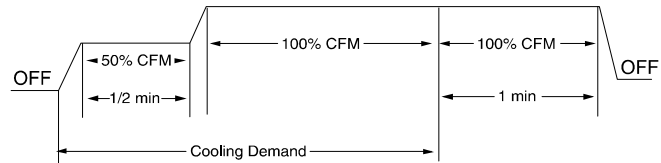
COOL SET-UP

This menu allows for the adjustment of several cooling performance variables. "Cool Airflow Trim" (range from -15% to +15% in 3% increments), "Cool Airflow Profiles", "Cool Fan ON Delay", "Cool Fan OFF Delay" and "Dehumidification Select" (enable or disable dehumidification) can be adjusted in this menu. You can also reset this entire menu to factory default settings. See the following images showing the four cooling airflow profiles.

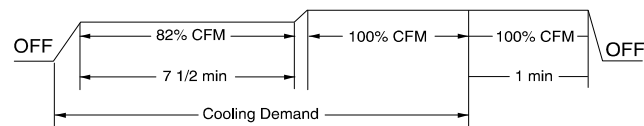
- **Profile A** provides only an OFF delay of one (1) minute at 100% of the cooling demand airflow.



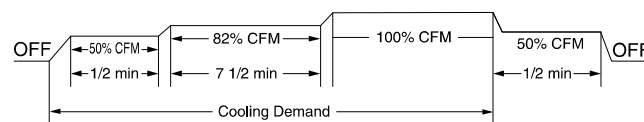
- **Profile B** ramps up to full cooling demand airflow by first stepping up to 50% of the full demand for 30 seconds. The motor then ramps to 100% of the required airflow. A one (1) minute OFF delay at 100% of the cooling airflow.



- **Profile C** ramps up to 82% of the full cooling demand airflow and operates there for approximately 7 1/2 minutes. The motor then steps up to the full demand airflow. Profile C also has a one (1) minute 100% OFF delay.



- **Profile D** (default) ramps up to 50% of the demand for 1/2 minute, then ramps to 82% of the full cooling demand airflow and operates there for approximately 7 1/2 minutes. The motor then steps up to the full demand airflow. Profile D has a 1/2 minute at 50% airflow OFF delay.



Airflow Tables

See service manual for more detailed information.

COOL RUN VALUES

Depending on the system configuration, adjusting the maximum compressor RPS (revolutions per second) may be required. Necessary adjustments to the maximum compressor RPS are made through the following sub-menus.

MAXIMUM COMPRESSOR RPS RANGE FOR COOLING

Select the range that your maximum compressor RPS falls within.

MAXIMUM COMPRESSOR RPS SELECTION FOR COOLING

Within the selected range, choose the specific maximum compressor RPS for the system configuration.

AIR CONDITIONER ADVANCED FEATURE MENU

DIAGNOSTICS		
SUBMENU ITEM	INDICATION/USER MODIFIABLE OPTIONS	COMMENTS
Clear Faults	NO or YES	Selecting "YES" clears the fault history.
Fault 1	Most recent AC fault	
Fault 2	2nd most recent AC fault	
Fault 3	3rd most recent AC fault	
Fault 4	4th most recent AC fault	
Fault 5	5th most recent AC fault	
Fault 6	6th most recent AC fault	

STATUS	
SUBMENU ITEM	COMMENTS
Time Stamp (TS)	Provides compressor run time in hours.
Mode (MD)	Current system operation mode (COOLING, COOLING STARTUP, OIL RETURN, STOP).
Compressor Reduction Mode (CRM)	Displays ON or OFF status. ON indicates that the reduction mode is operating and the compressor is running at a lower speed than the cooling load would normally require.
Requested and Actual % Demand (RAD)	Displays a 0-100% value, based on a ratio of the requested cooling demand to what the system is actually providing.
Requested and Reported ID CFM (RAF)	Compares the indoor airflow to what the indoor equipment has reported.
Outdoor Air Temperature and Outdoor Fan RPM (ATOF)	Displays the outdoor air temperature as well as the outdoor fan speed (RPM).
Discharge Temperature and Outdoor Coil Temperature (DCT)	Displays the discharge temperature and outdoor coil temperature sensor readings.
Outdoor Liquid Temperature (DLT)	Displays the outdoor liquid temperature sensor reading.
Pressure Sensor and Suction Temperature (PSDST)	Displays the pressure sensor reading which is taken slightly upstream of the suction accumulator and outdoor suction temperature sensor reading.

SYSTEM SETUP (SYS SETUP)		
SUBMENU ITEM	USER MODIFIABLE OPTIONS	COMMENTS
Reset System Setup Options to Factory Defaults (SYS SETUP RESET)	NO or YES	Selecting "YES" resets this menu to factory default settings.
SET MAX CURRENT	N/A	Future use.
VERTICAL RISE	Same Level, Outdoor Lower, or Indoor Lower	If the outdoor & indoor units are within +/- 15 ft. vertical distance, select "SAME LEVEL". If the outdoor unit is more than 15 ft. below the indoor unit, select "OUTDOOR LOWER". If the outdoor unit is more than 15 ft. above the indoor unit, select "INDOOR LOWER".
BOOST MODE ("BOOST MD")	ON or OFF	"BOOST MD" turns BOOST MODE OFF or ON. BOOST MODE is ON by default. See BOOST MODE section of this manual for more details.
BOOST MODE TEMPERATURE (BOOST TEMP)	Always ON, 70, 75, 80, 85, 90, 95, 100, 105°F	BOOST TEMP adjusts the activation temperature from 70°F to 105°F. An "Always ON" option is also available to permanently engage BOOST MODE.
NIGHT MODE (NIGHT MD)	ON or OFF	NIGHT MODE is OFF by default. See NIGHT MODE section of this manual for more details.
NOISE DOWN LEVEL	1, 2, or 3	NOISE DOWN LEVEL adjusts the noise level. 3 is the most quiet level.
NIGHT MODE START	-2Hour, -1Hour, Standard, +1Hour, +2Hour	NIGHT MODE START adjusts the time to start for NIGHT MODE.
NIGHT MODE END	-2Hour, -1Hour, Standard, +1Hour, +2Hour	NIGHT MODE END adjusts the time to end for NIGHT MODE.
CAPACITY PRIORITY (CAP PRIORITY)	ON or OFF	CAP PRIORITY is ON by default. If during operation the capacity demand is high, then the night mode function will be temporarily overridden by the cap priority function to return the room temperature to the set point.

EQUIPMENT TEST (EQUIP TEST)		
SUBMENU ITEM	INDICATION/USER MODIFIABLE OPTIONS	COMMENTS
System Verification Test (SYSTEM TEST)	ON or OFF	System Verification Test must be run after installation. This is approximately a 10-15 minute test. If the thermostat is set to COOL mode, the system will enter CHARGE mode upon completion, otherwise it will stop.

SYSTEM MAINTENANCE (MAINTENANCE)		
SUBMENU ITEM	USER MODIFIABLE OPTIONS	COMMENTS
CHARGE MODE	ON or OFF	Enter Charging Mode. This allows for a steady system operation for a duration of approximately 1 hour to allow for refrigerant charging of the system via the suction charge port. The system will stop after completion.

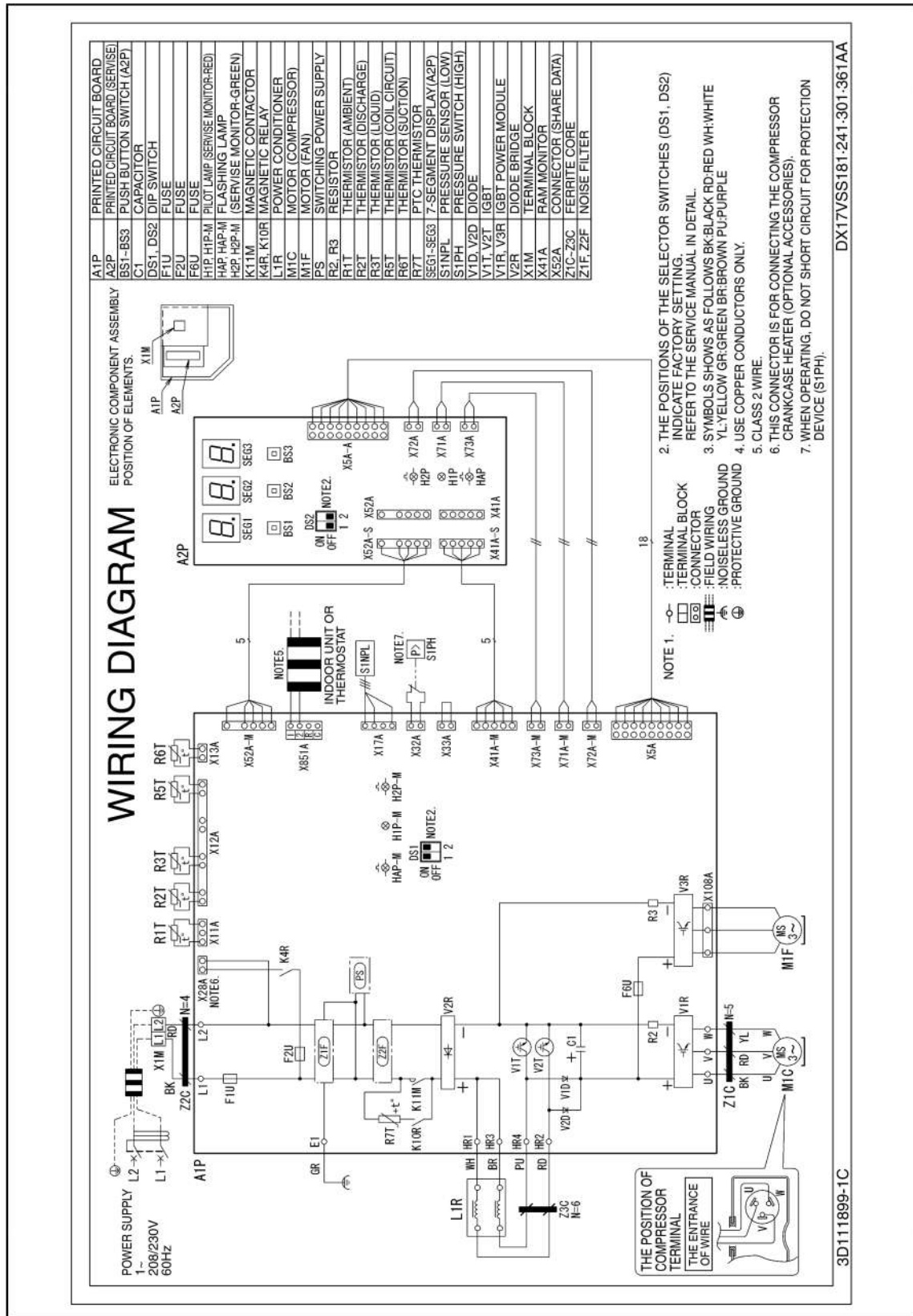
COOL SETUP		
SUBMENU ITEM	USER MODIFIABLE OPTIONS	COMMENTS
CL Reset	YES or NO	Selecting to default factory setting.
Cool Airflow Trim Hi	-15% to +15% in 3% increments	Selects the cooling airflow trim amount.
Cool Airflow Trim Int	-15% to +15% in 3% increments	Selects the cooling airflow trim amount.
Cool Airflow Trim Low	-15% to +15% in 3% increments	Selects the cooling airflow trim amount.
Cool Airflow Profile	A, B, C, or D	Selects the cooling airflow profile.
Cool ON Delay	5, 10, 20, 30 seconds	Selects the indoor blower ON delay.
Cool OFF Delay	30, 60, 90, 120 seconds	Selects the indoor blower OFF delay.
Dehumidification Select	ON or OFF	Selecting "OFF" disables dehumidification; selecting "ON" enables dehumidification.

SET COOLING RUN VALUES (CL RUN VALUES)		
SUBMENU ITEM	USER MODIFIABLE OPTIONS	COMMENTS
Maximum Compressor RPS Range for Cooling (COOL RPS RANGE)	Five different compressor RPS ranges will be provided.	Select the appropriate range for the installed system configuration.
Maximum Compressor RPS Selection for Cooling (COOL RPS SELECT)	10 compressor RPS values will be provided within the range selected in the COOL RPS RANGE menu.	Select the appropriate compressor RPS for the installed system configuration.

WIRING DIAGRAM

WARNING

HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



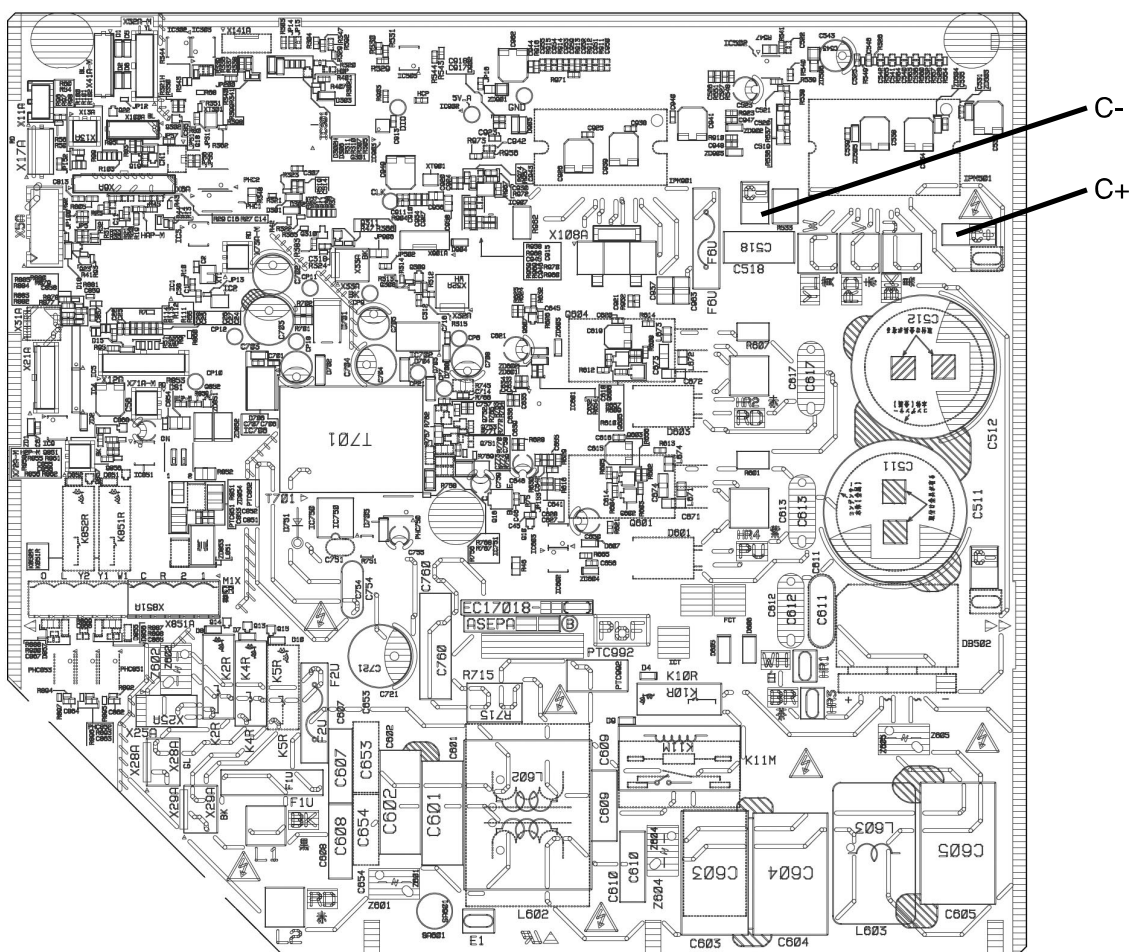
CAPACITOR

WARNING

AVOID CONTACT WITH THE CHARGED AREA.

- NEVER TOUCH THE CHARGED AREA BEFORE CONFIRMING THAT THE RESIDUAL VOLTAGE IS 50 VOLTS OR LESS.

1. SHUT DOWN THE POWER AND LEAVE THE CONTROL BOX FOR 10 MINUTES.
2. MAKE SURE TO TOUCH THE EARTH GROUND TERMINAL TO RELEASE THE STATIC ELECTRICITY FROM YOUR BODY (TO PREVENT FAILURE OF THE PC BOARD).
3. MEASURE THE RESIDUAL VOLTAGE IN THE SPECIFIED MEASUREMENT POSITION USING A VOM WHILE PAYING ATTENTION NOT TO TOUCH THE CHARGED AREA.
4. IMMEDIATELY AFTER MEASURING THE RESIDUAL VOLTAGE, DISCONNECT THE CONNECTORS OF THE OUTDOOR UNIT'S FAN MOTOR. (If the fan blade rotates by strong wind blowing against it, the capacitor **WILL BE CHARGED**, CAUSING THE DANGER OF ELECTRICAL SHOCK.)



COOLING ANALYSIS CHART

POSSIBLE CAUSE X IN ANALYSIS GUIDE INDICATE “POSSIBLE CAUSE”	Comp discharge temp > 200F	Comp discharge temp < 105F	Comp discharge SH > 70F	Comp discharge SH < 20F	High pressure > 490psi	High pressure < 255psi	LSV SC > 12F	LSV SC < 4F	OD SSV SH > 20F	OD SSV SH < 4F	Low pressure > 185psi	Low pressure < 100psi	Requested % demand < Actual	Requested % demand > Actual	Repeated stop/start	Weak cooling	No switch cooling	Noise	Stop operation
Liquid stop valve does not fully open	X		X		X		X		X			X		X	X	X		X	
Suction stop valve does not fully open	X		X									X		X	X	X			
Line set restriction	X		X		X		X		X			X		X	X	X		X	
Line set length is too long									X			X			X	X		X	
Blocked filter-dryer	X		X		X		X		X			X		X	X	X		X	
ID EEV coil failure	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X
ID EEV failure	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
High Pressure switch failure																			X
Pressure sensor failure	X										X	X		X	X	X			X
Suction temp sensor failure													X	X		X			
Discharge temp sensor failure	X	X	X	X									X	X	X	X			X
Coil temp sensor failure				X	X	X							X	X	X	X			X
Liquid temp sensor failure																			
Ambient temp sensor failure				X	X	X							X	X	X	X			
OD recirculation	X		X		X									X	X	X		X	
ID recirculation		X		X					X			X	X	X	X	X			
Dirty OD Heat-exchanger	X		X		X									X	X	X		X	
Dirty ID Heat-exchanger		X		X				X		X		X	X	X	X	X			
Outdoor Ambient temp is too high	X		X		X				X					X	X	X		X	
Outdoor Ambient temp is too low		X		X		X	X					X	X	X	X	X			
ID suction temp is too high									X		X								
ID suction temp is too low		X		X				X		X		X	X	X	X	X			
Mixture of non-condensable gas	X		X		X			X	X			X		X	X	X		X	
OD fan motor failure	X		X		X			X						X	X	X		X	X
Over charge	X	X	X	X	X		X		X			X				X			X
Under charge	X	X	X			X		X	X			X				X		X	
Leak	X	X	X			X		X	X			X		X	X	X		X	
OD Control Board Failure																			X
ID Failure	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Compressor failure	X	X	X			X					X			X	X	X		X	X
Compressor and Gas furnace are operating at the same time																			X
Low ID CFM		X		X						X		X	X	X	X	X			X

Outdoor Normal Temperature Operating Range: 67-115°F / Indoor Normal Temperature Operating Range: 65 - 85°F

TROUBLESHOOTING

ClimateTalk Fault Code	PCB LED Display	Transmitted ClimateTalk Message	Thermostat Fault	Probable Causes	Corrective Actions
12	E12	OD CTRL FAIL1	Indicates a general memory error.	<ul style="list-style-type: none"> High electrical noise Faulty control board 	<ul style="list-style-type: none"> Replace control board if necessary
13	E13	HI PRESSURE C (C = CRITICAL)	This error indicates the equipment is experiencing frequent high pressure faults.	<ul style="list-style-type: none"> Blocked/restricted condenser coil and/or lines Stop valve not completely open Overcharge Outdoor fan not running High pressure switch (HPS) inoperable Faulty indoor EEV coil Faulty indoor EEV Faulty control board 	<ul style="list-style-type: none"> Check and clean condenser coil and/or lines Check the opening of stop valve, should be full open; Repair/replace if needed Check refrigerant charge level; Adjust if needed Check outdoor fan motor & wiring; Repair/replace if needed Check indoor EEV; Replace if needed Check indoor EEV coil; Replace if needed Replace control board if necessary
14	-	HI PRESSURE M (M = MINOR)	This error indicates the equipment is experiencing frequent high pressure faults. Control has determined continued operation is acceptable. This indicates they may be a problem with the equipment.	<ul style="list-style-type: none"> Blocked/restricted condenser coil and/or lines Stop valve not completely open Overcharge Outdoor fan not running High pressure switch (HPS) inoperable Faulty indoor EEV coil Faulty indoor EEV Faulty control board 	<ul style="list-style-type: none"> Check and clean condenser coil and/or lines Check the opening of stop valve, should be full open; Repair/replace if needed Check refrigerant charge level; Adjust if needed Check outdoor fan motor & wiring; Repair/replace if needed Check indoor EEV; Replace if needed Check indoor EEV coil; Replace if needed Replace control board if necessary
15	E15	LOW PRESSURE C	This error indicates the equipment is experiencing frequent low pressure faults.	<ul style="list-style-type: none"> Stop valve not completely open Restriction in refrigerant lines Low refrigerant charge Refrigerant leak Low pressure sensor inoperable or not properly connected Indoor fan motor not functioning correctly Faulty indoor EEV coil Faulty indoor EEV Faulty control board 	<ul style="list-style-type: none"> Check the opening of stop valve, should be full open; Repair/replace if needed Check for restrictions in refrigerant line; Repair/replace if needed Check refrigerant charge level; Adjust if needed Test for system leaks using leak test procedure Check the connection to low pressure sensor; Repair/replace if needed Check indoor EEV; Replace if needed Check indoor EEV coil; Replace if needed Check indoor blower motor & wiring; Repair/replace if needed Replace control board if necessary
16	-	LOW PRESSURE M	This error indicates the equipment is experiencing frequent low pressure faults. Control has determined continued operation is acceptable. This indicates they may be a problem with the equipment.	<ul style="list-style-type: none"> Stop valve not completely open Restriction in refrigerant lines Low refrigerant charge Refrigerant leak Low pressure sensor inoperable or not properly connected Indoor fan motor not functioning correctly Faulty indoor EEV coil Faulty indoor EEV Faulty control board 	<ul style="list-style-type: none"> Check the opening of stop valve, should be full open; Repair/replace if needed Check for restrictions in refrigerant line; Repair/replace if needed Check refrigerant charge level; Adjust if needed Test for system leaks using leak test procedure Check the connection to low pressure sensor; Repair/replace if needed Check indoor EEV; Replace if needed Check indoor EEV coil; Replace if needed Check indoor blower motor & wiring; Repair/replace if needed Replace control board if necessary
17	E17	COMPRESSOR FAIL	This error indicates the equipment is experiencing frequent compressor faults.	<ul style="list-style-type: none"> Stop valve not completely open The compressor wire is lost phase Compressor motor failure 	<ul style="list-style-type: none"> Check the opening of stop valve, should be full open; Repair/replace if needed Check the wire between control board and compressor Inspect compressor motor for proper function; Replace if necessary
18	E18	OD CTRL FAIL2	Indicates the control board may need to be replaced.	<ul style="list-style-type: none"> Outdoor fan motor not connected properly Faulty control board Electrical Noise 	<ul style="list-style-type: none"> Check wiring from Outdoor fan motor to control board; Repair if needed Replace control board if necessary
19	E19	PCB OR FAN FAIL	This error indicates the equipment is experiencing frequent outdoor control board and/or motor faults.	<ul style="list-style-type: none"> Obstruction in fan rotation Outdoor fan motor not connected properly Outdoor fan not running Faulty control board Electrical Noise 	<ul style="list-style-type: none"> Check and clean grille of any debris Check wiring from Outdoor fan motor to control board; Repair if needed Check outdoor fan motor & wiring; Repair/replace if needed Replace control board if necessary
21	E21	EEV CTRL FAIL	This error indicates the equipment is experiencing frequent low discharge superheat faults.	<ul style="list-style-type: none"> Thermistors inoperable or improperly connected Faulty indoor EEV coil Faulty indoor EEV Over charge Faulty pressure sensor Faulty control board 	<ul style="list-style-type: none"> Check the connection to thermistors; Repair/replace if needed Check indoor EEV coil; Repair/replace if needed Check indoor EEV; Replace/repair if needed Check refrigerant charge level; Adjust if needed Check pressure sensor; Repair/replace if needed Replace control board if necessary
22	E22	HI DISCH TEMP	This error indicates the equipment is experiencing frequent high discharge temperature faults. Discharge thermistor is not put in correct position.	<ul style="list-style-type: none"> Discharge thermistor inoperable or improperly connected Discharge thermistor is put in incorrect position or off Jumper wire (X33A) is put in incorrect position or off Low refrigerant charge Overcharge Faulty compressor 	<ul style="list-style-type: none"> Check discharge thermistor resistance and connections; Repair/replace as needed Check discharge thermistor position Check jumper wire position (X33A) Check refrigerant charge level; Adjust if needed Check the compressor; Repair/replace if needed
23	E23	DISCH TEMP FAIL	The control has detected that the Discharge Temperature Sensor is out of range.	<ul style="list-style-type: none"> Discharge thermistor inoperable or improperly connected 	<ul style="list-style-type: none"> Check discharge thermistor resistance and connections; Repair/replace as needed
24	E24	HPS OPEN	The high pressure switch is open.	<ul style="list-style-type: none"> High pressure switch (HPS) inoperable 	<ul style="list-style-type: none"> Check resistance on HPS to verify operation; Replace if needed
25	E25	AIR SENSOR FLT	The outdoor air temperature sensor is open or shorted.	<ul style="list-style-type: none"> Faulty outdoor thermistor sensor or disconnect 	<ul style="list-style-type: none"> Inspect and test sensor; Replace sensor if needed

TROUBLESHOOTING

ClimateTalk Fault Code	PCB LED Display	Transmitted ClimateTalk Message	Thermostat Fault	Probable Causes	Corrective Actions
26	E26	PRESSURE SENSOR	The control determines that the pressure sensor is not reacting properly.	<ul style="list-style-type: none"> Low pressure sensor inoperable or not properly connected 	<ul style="list-style-type: none"> Check the connection to low pressure sensor; Repair/replace if needed
28	E28	COIL TEMP FAIL2	The control has detected that the Outdoor Coil Temperature Sensor is out of range.	<ul style="list-style-type: none"> Outdoor coil thermistor inoperable or not properly connected 	<ul style="list-style-type: none"> Check the connection to OD coil thermistor; Repair/replace if needed
29	E29	LIQ TEMP FAIL	The control has detected that the Liquid Temperature Sensor is out of range.	<ul style="list-style-type: none"> Liquid thermistor inoperable or not properly connected 	<ul style="list-style-type: none"> Check the connection to liquid thermistor; Repair/replace if needed
30	E30	OD CTRL FAIL3	Indicates the control board may need to be replaced.	<ul style="list-style-type: none"> Wiring to control board disconnected Faulty control board Electrical Noise 	<ul style="list-style-type: none"> Check wiring to control board; Repair as needed Replace control board if necessary
32	E32	HITEMP CTRL1	This error indicates the equipment is experiencing high temperature faults on the outdoor control board.	<ul style="list-style-type: none"> Ambient air conditions too high Stop valve not completely open 	<ul style="list-style-type: none"> Cycle power; re-try during usable ambient temperature range
33	-	HITEMP CTRL2	This error indicates the equipment is experiencing high temperature faults on the outdoor control board. Control has determined continued operation is acceptable. This indicates they may be a problem with the equipment.	<ul style="list-style-type: none"> Ambient air conditions too high Stop valve not completely open 	<ul style="list-style-type: none"> Cycle power; re-try during usable ambient temperature range
34	E34	CURRENT SPIKE	Board detected a high current condition. This indicates the potential for a short circuit.	<ul style="list-style-type: none"> Current spike in supply Stop valve not completely open The compressor wire is lost phase Faulty control board Faulty compressor 	<ul style="list-style-type: none"> Check power supply for in-rush current during start-up or steady state operation Check the opening of stop valve, should be full open; Repair/replace if needed Check the wire between control board and compressor Replace control board if necessary Check the compressor; Repair/replace if needed
35	E35	HIGH CURRENT	Board detected a high current condition.	<ul style="list-style-type: none"> Short circuit condition Stop valve not completely open Overcharge Faulty control board Faulty compressor 	<ul style="list-style-type: none"> Check installation clearances. Check the opening of stop valve, should be full open; Repair/replace if needed Check refrigerant charge level; Adjust if needed Replace control board if necessary Check the compressor; Repair/replace if needed.
36	E36	STARTUP ERROR	The control encountered an abnormal condition during the startup procedure.	<ul style="list-style-type: none"> Blocked/restricted condenser coil and/or lines The compressor wire is lost phase Inconsistent compressor load Faulty control board 	<ul style="list-style-type: none"> Check and clean condenser coil and/or lines Check the wire between control board and compressor Replace control board if necessary
37	E37	OD CTRL FAIL4	Indicates the control board may need to be replaced.	<ul style="list-style-type: none"> Outdoor fan motor not connected properly Faulty control board 	<ul style="list-style-type: none"> Check wiring from Outdoor fan motor to control board; Repair if needed Replace control board if necessary
38	E38	COMP VOLTAGE	The control has detected a voltage related issue with the compressor.	<ul style="list-style-type: none"> High or low voltage from supply The compressor wire is lost phase Faulty control board 	<ul style="list-style-type: none"> Correct low/high line voltage condition; Contact local utility if needed Check the wire between control board and compressor Replace control board if necessary
39	E39	OD CTRL FAIL5	Indicates the control board may need to be replaced.	<ul style="list-style-type: none"> Thermistors inoperable or improperly connected Faulty control board 	<ul style="list-style-type: none"> Check the connection to thermistors; Repair/replace if needed Replace control board if necessary
40	E40	COMP MISMATCH	Control determines that its compressor requirement is different than the compressor capability.	<ul style="list-style-type: none"> Memory card not correct Control board mismatch 	<ul style="list-style-type: none"> Check memory card data vs. air conditioner model Verify control board size vs. air conditioner model; Replace control board if necessary
41	E41	LOW REFRIGERANT	The control has detected a low refrigerant condition.	<ul style="list-style-type: none"> Refrigerant leak Low refrigerant charge Thermistors inoperable or not properly connected 	<ul style="list-style-type: none"> Test for system leaks using leak test procedure Check refrigerant charge level; Adjust if needed Check the connection to thermistor; Repair/replace if needed
42	E42	LOW LINE VOLT	Control detects a low power supply voltage condition.	<ul style="list-style-type: none"> Low line voltage supply 	<ul style="list-style-type: none"> Check circuit breakers and fuses; Replace if needed Verify unit is connected to power supply as specified on rating plate Correct low line voltage condition; Contact local utility if needed
43	E43	HIGH LINE VOLT	Control detects a high power supply voltage condition.	<ul style="list-style-type: none"> High line voltage supply 	<ul style="list-style-type: none"> Verify unit is connected to power supply as specified on rating plate Correct high line voltage condition; Contact local utility if needed
44	E44	OP TEMP RANGE	The control detects the outdoor temperature outside recommended operational range. Unit may continue to operate normally.	<ul style="list-style-type: none"> Ambient air conditions too high or low 	<ul style="list-style-type: none"> Cycle power; re-try during usable ambient temperature range
45	E45	NO COOLING TEST	The control is unable to start the Cooling mode test because indoor heat has been turned on by thermostat. Please set thermostat to off position.	<ul style="list-style-type: none"> Heat provided by secondary heating source 	<ul style="list-style-type: none"> Turn off Furnace or heater using thermostat before operation

TROUBLESHOOTING

ClimateTalk Fault Code	PCB LED Display	Transmitted ClimateTalk Message	Thermostat Fault	Probable Causes	Corrective Actions
47	E47	NO SYS VER TEST	The control is unable to start the System Verification test because indoor heat has been turned on by thermostat. Please set thermostat to off position.	<ul style="list-style-type: none"> Heat provided by secondary heating source 	<ul style="list-style-type: none"> Turn off Furnace or heater using thermostat before operation
49	E49	NO CHARGE MODE	The control is unable to enter Charging Mode because indoor heat has been turned on by thermostat. Please set thermostat to off position.	<ul style="list-style-type: none"> Heat provided by secondary heating source 	<ul style="list-style-type: none"> Turn off heater using thermostat before operation
50	E50	LINE VOLT CTRL	This indicates there is a voltage issue on the control board. See service manual for troubleshooting information.	<ul style="list-style-type: none"> High or low voltage from supply Faulty control board 	<ul style="list-style-type: none"> Correct low/high line voltage condition; Contact local utility if needed Replace control board if necessary
51	E51	OD COMM ERROR	This indicates potential communication issues have been detected by the outdoor control board.	<ul style="list-style-type: none"> Communication wiring disconnected 	<ul style="list-style-type: none"> Check communication wiring; Repair as needed
52	-	COMP FAIL MINOR	This error indicates the equipment is experiencing frequent compressor faults. Control has determined continued operation is acceptable. This indicates they may be a problem with the equipment.	<ul style="list-style-type: none"> Stop valve not completely open The compressor wire is lost phase Compressor motor failure 	<ul style="list-style-type: none"> Check the opening of stop valve, should be full open; Repair/replace if needed Check the wire between control board and compressor Inspect compressor motor for proper function; Replace if necessary
53	-	PCB OR FAN MIN	This error indicates the equipment is experiencing frequent outdoor control board and/or motor faults. Control has determined continued operation is acceptable. This indicates they may be a problem with the equipment.	<ul style="list-style-type: none"> Obstruction in fan rotation Outdoor fan motor not connected properly Outdoor fan not running Faulty control board Noise 	<ul style="list-style-type: none"> Check and clean grille of any debris Check wiring from Outdoor fan motor to control board; Repair if needed Check outdoor fan motor & wiring; Repair/replace if needed Replace control board if necessary
54	-	EEV MINOR	This error indicates the equipment is experiencing frequent low discharge superheat faults. Control has determined continued operation is acceptable. This indicates they may be a problem with the equipment.	<ul style="list-style-type: none"> Thermistors inoperable or improperly connected Faulty indoor EEV or indoor EEV coil Faulty control board 	<ul style="list-style-type: none"> Check the connection to thermistors; Repair/replace if needed Check indoor EEV; Replace if needed Check indoor EEV coil; Replace if needed Replace control board if necessary
55	-	HI DIS TEMP MIN	This error indicates the equipment is experiencing frequent high discharge temperature faults. Control has determined continued operation is acceptable. This indicates they may be a problem with the equipment.	<ul style="list-style-type: none"> Discharge thermistor inoperable or improperly connected Discharge thermistor is put in incorrect position or off Low refrigerant charge Overcharge Faulty compressor 	<ul style="list-style-type: none"> Check discharge thermistor resistance and connections; Repair/replace as needed Check discharge thermistor position Check refrigerant charge level; Adjust if needed Check refrigerant charge level; Adjust if needed Check the compressor; Repair/replace if needed
56	E56	SUCT TEMP FAIL	The control has detected if the Outdoor Suction Temperature Sensor is out of range.	<ul style="list-style-type: none"> Suction thermistor inoperable or not properly connected 	<ul style="list-style-type: none"> Check the connection to suction thermistor; Repair/replace if needed Check the obstruction inside duct work.
B0	Eb0	NO ID AIRFLOW	The estimated airflow from indoor subsystem is near to 0 CFM.	<ul style="list-style-type: none"> Failed indoor blower motor Indoor fan motor not properly connected Too much static pressure 	<ul style="list-style-type: none"> Check ID fan motor wiring and connectors; Repair/replace if needed Check ID fan motor; Replace if needed Check the obstruction inside duct work.
B9	Eb9	LOW ID AIRFLOW	Estimated airflow from motor is lower than the airflow requirement.	<ul style="list-style-type: none"> Failed indoor blower motor Indoor fan motor not properly connected Too much static pressure 	<ul style="list-style-type: none"> Check ID fan motor wiring and connectors; Repair/replace if needed Check ID fan motor; Replace if needed
D0	Ed0	NO NET DATA	Control board does not have the necessary data for it to properly perform its functions.	<ul style="list-style-type: none"> Air conditioner is wired as part of a communicating system and integrated control module does not contain any shared data. 	<ul style="list-style-type: none"> Replace control board if necessary
D1	Ed1	INVALID DATA	Control board does not have the appropriate data needed to properly perform its functions.	<ul style="list-style-type: none"> Air conditioner is wired as part of a communicating system and integrated control module contains invalid shared data or network data is invalid for the integrated control module. 	<ul style="list-style-type: none"> Replace control board if necessary
D2	Ed2	SYSTEM MISMATCH	The airflow requirement is greater than the airflow capability of the indoor subsystem.	<ul style="list-style-type: none"> Air conditioner is wired as part of a communicating system and outdoor unit requires airflow greater than indoor unit's airflow capability Shared data is incompatible the system or missing parameters Communication wiring has loose connection. Indoor unit without EEV. 	<ul style="list-style-type: none"> Verify shared data is correct for your specific model; Repopulate data if required Check communication wiring. Repair as needed.
D3	Ed3	INVALID COMFIG	There is a mismatch between the shared data and the control physical hardware.	<ul style="list-style-type: none"> Shared data sent to integrated control module does not match hardware configuration. 	<ul style="list-style-type: none"> Verify shared data is correct for your specific model; Repopulate data if required
D4	Ed4	INVALID MC DATA	The memory card data has been rejected.	<ul style="list-style-type: none"> Shared data on memory card has been rejected. 	<ul style="list-style-type: none"> Verify shared data is correct for your specific model; Repopulate data if required

TROUBLESHOOTING

Items below are messages only displayed on the thermostat screen.					
11	E11	RUN SYST TEST	<p>This test is required at startup. Installer should navigate to the ComfortNet User Menu, choose Air Conditioner, then EQUIP TEST and SYSYTEM TEST. Selecting ON will run the required test. Display will clear once testing is complete.</p>	<ul style="list-style-type: none">• Incomplete SYSTEM TEST• SYSTEM TEST is running	Run the system test.

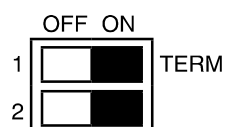
TROUBLESHOOTING

NETWORK TROUBLESHOOTING

Communication is achieved by taking the difference between a positive dc signal and a negative dc signal. The positive dc signal is termed “data 1” or “1”. Data 1 is positive with respect to ground (or common). The negative dc signal is termed “data 2” or “2”. Data 2 is negative with respect to ground (or common).

Data 1 should be approximately 2.8 volts dc. Data 2 should be approximately 2.2 volts dc. The voltage difference between data 1 and data 2 should be approximately 0.6 volts dc.

Verify that the bus DS1 dip switches are in the ON position.



The ComfortNet™ system is a fully communicating system, constituting a network. Occasionally the need to troubleshoot the network may arise. The integrated control module has some onboard tools that can be used to troubleshoot the network. These tools are: red communications LED, green receive (Rx) LED, and the learn button.

- Red communications LED – Indicates the status of the network. The table below indicates the LED status and the corresponding potential problem.
- Green receive LED – Indicates network traffic. The table below indicates the LED status and the corresponding potential problem.
- LEARN button – Used to reset the network. Depress the button for approximately 5 seconds to reset the network.

Dipswitch Default Factory Settings			
Switch #		Setting	Purpose
OD DS1	1	ON	CT Communication Enabled
	2	ON	CT Communication Enabled
OD DS2	1	OFF	Cooling Emergency Mode for Future Use*
	2	OFF	Cooling Emergency Mode for Future Use*

*OD DS2 switch 1 and 2 both must be turned on during normal operation mode

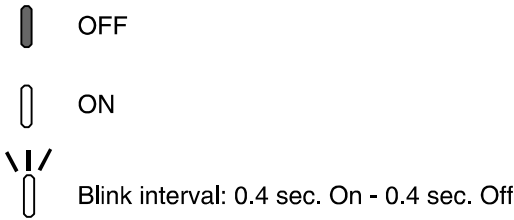
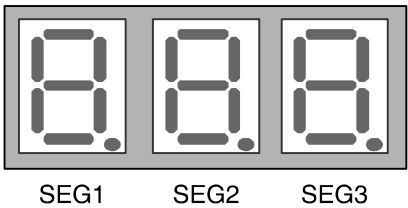
LED COLOR	LED Status	Indication	Probable Causes	Corrective Actions
Red Communications LED (H1P)	Off	Nominal condition	• None	• None
	1 Flash	Communications Failure	• Unknown packet is received	• Depress learn button
	2 Flash	Out-of-box reset	• Control power up • Learn button depressed	• None
Green Receive LED (H2P)	Off	No power Communications error	• No power to Outdoor unit • Open fuse • Communication error	• Check circuit breakers and fuses; Replace if needed • Reset network by depressing learn button • Check communication wires (data 1/ data 2 wires); Replace if needed
	1 Steady Flash	No network found	• Broken/ disconnected communication wire(s) • AC is installed as a legacy/ traditional system	• Check communication wires (data 1/ data 2 wires); Replace if needed • Check installation type (legacy/ traditional or communicating) • Check data 1/ data 2 voltages
	Rapid Flashing	Nominal network traffic	• Control is “talking” on network as expected	• None
	On Solid	Data 1/Data 2 miss-wire	• Data 1 and data 2 wires reversed at indoor unit, thermostat, or outdoor unit • Short between data 1 and data 2 wires • Short between data 1 or data 2 wires	• Check communication wires (data 1/ data 2 wires); Replace if needed • Check data 1/ data 2 voltages

MODE DISPLAY INTRODUCTION

A 3-digit display is provided on the printed circuit board (PCB) as a backup tool to the thermostat for reading faults, fault history, monitoring and setting up the air conditioner. Follow the information provided in this section to learn how to use the mode display.

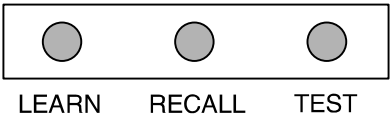
DISPLAY

The display consists of 3 digits.



DISPLAY BUTTON LAYOUT

The display buttons shown can be used to navigate and select items:



MODES

There are 5 modes which can be accessed using the setting display: "FAULT CODE, FAULT HISTORY, MONITORING, SETTING MODE 1" and "SETTING MODE 2".

To enter any of these modes, use the schemes shown in this section. Each mode has its own corresponding "Screen #" within the display itself which allows the user to navigate and use the features. (Example: The Fault Code is accessed and displayed from "Screen Zero" of the 7-segment display. The Fault History is accessed and display using "Screen One" of the display, etc.)

<u>MODE</u>	<u>FUNCTION</u>	<u>DISPLAY SCREEN #</u>
<i>Fault Code Display</i>	Present fault (if any).	0 (Default)
<i>Fault Code History</i>	6 Recent faults stored.	1
<i>Monitoring Mode</i>	*Monitors system values.	2
<i>Setting Mode 1</i>	*Can change system settings	3
<i>Setting Mode 2</i>	*Can change system settings.	4

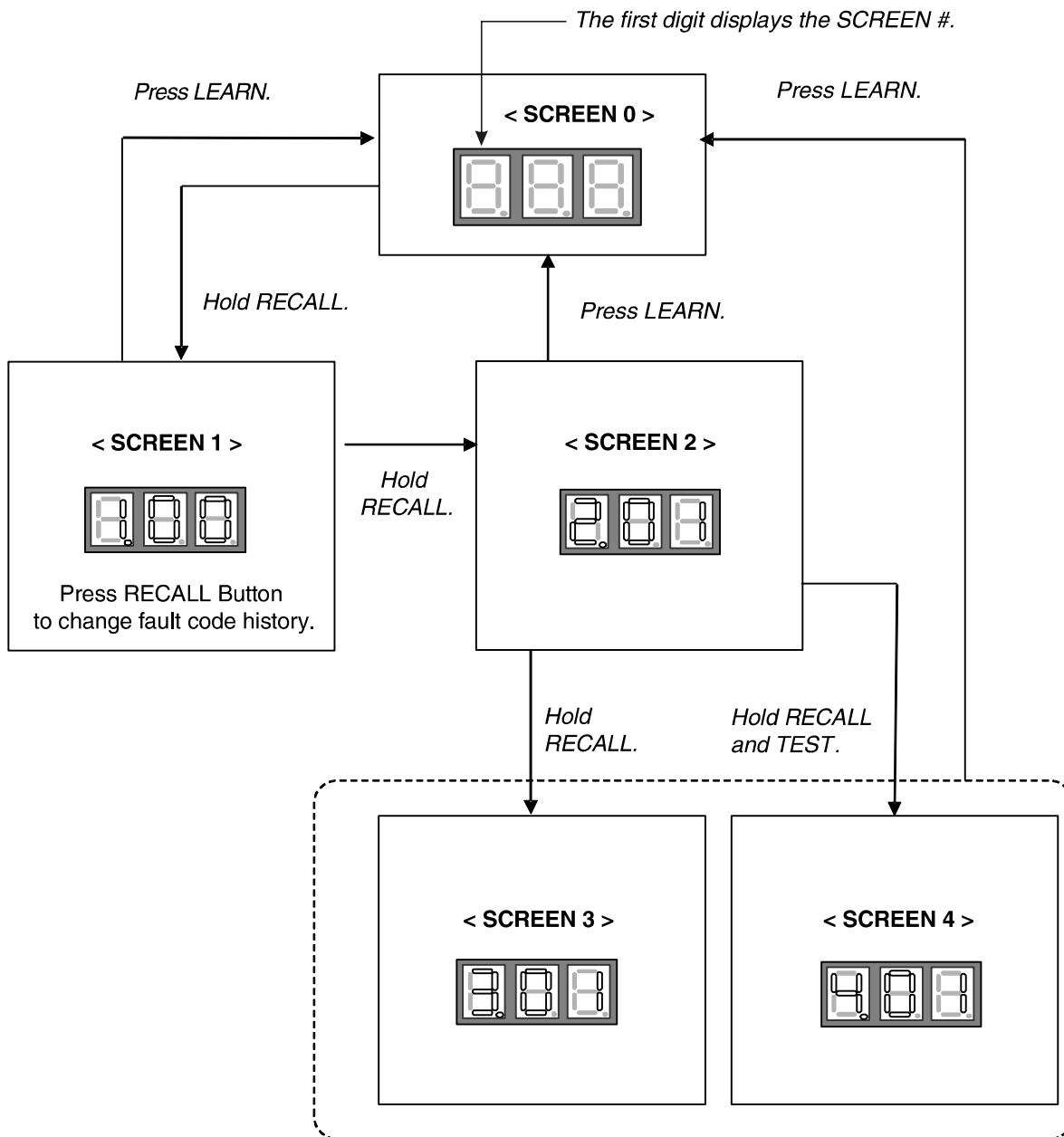
**See tables at the end of this section.*

SETTING THE MODE DISPLAY

NAVIGATING THROUGH THE DISPLAY SCREENS

- SCREEN 0** The home or default screen on the display. This shows the most recent fault.
SCREEN 1 To access, hold the "RECALL" button from screen 0 - 5 seconds.
SCREEN 2 To access, hold the "RECALL" button from screen 1 - 5 seconds.
SCREEN 3 To access, hold the "RECALL" button from screen 2 - 5 seconds.
SCREEN 4 To access, hold the "RECALL" and "TEST" buttons simultaneously - 5 seconds.

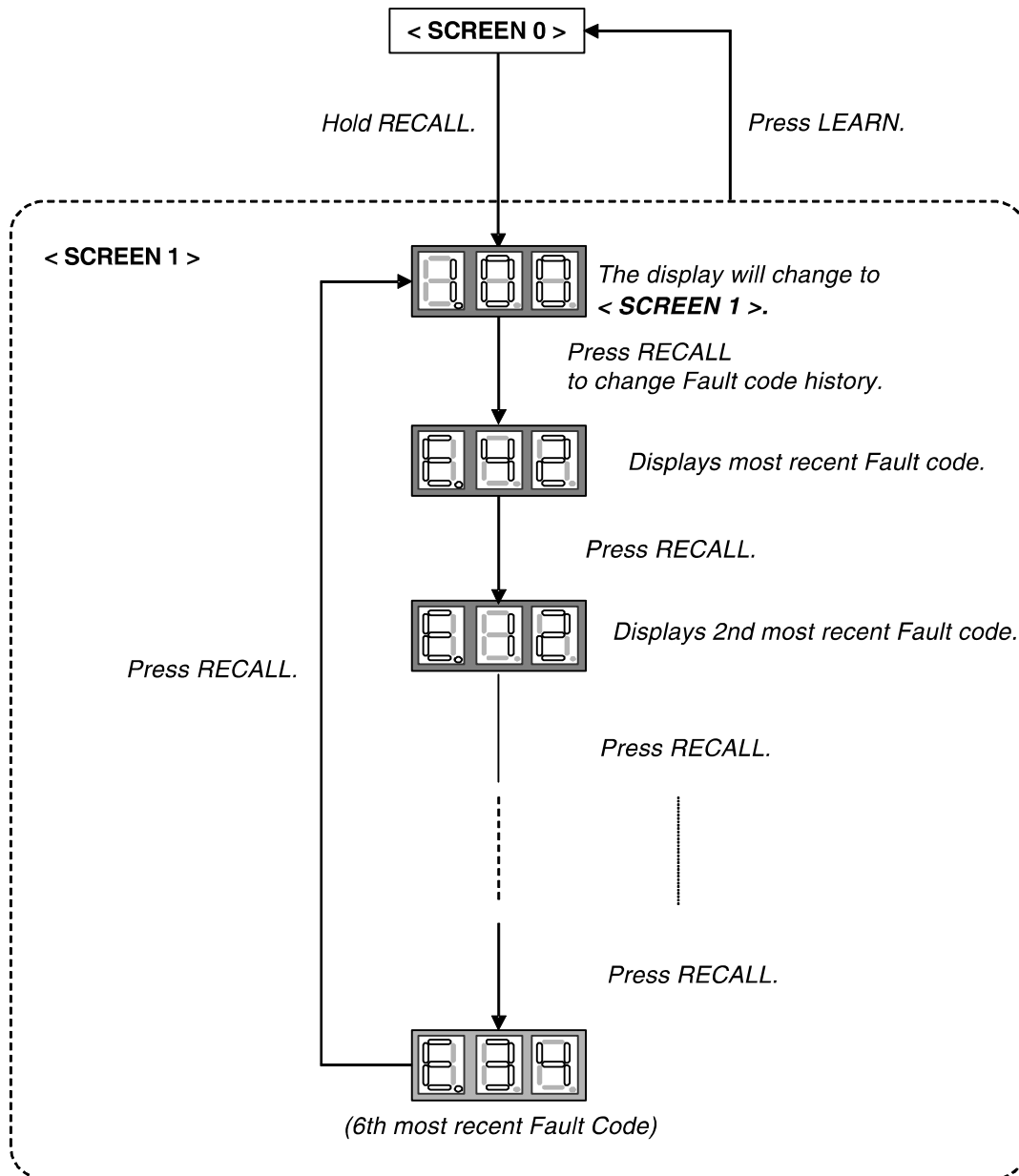
To return to SCREEN 0 of the display, press the LEARN button.



FAULT CODE HISTORY NAVIGATION

< SCREEN 1 >

This mode will allow the user to see the six most recent system faults.
For a list of the fault codes, please see the TROUBLESHOOTING tables in this document.



SETTING THE MODE DISPLAY

MONITORING MODE NAVIGATION

< SCREEN 2 >

This screen allows the user to monitor system variables as shown in the tables at the end of this section.

< SCREEN 0 >

OFF

ON



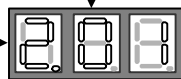
Blink interval:
0.4 sec. On - 0.4 sec. Off

< SCREEN 1 >

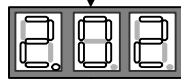
Hold *RECALL*.

Press *LEARN*.

< SCREEN 2 >



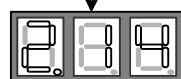
Press *RECALL*
to increase the value.



Press *RECALL*.

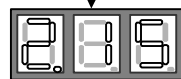
Press
RECALL.

Press *RECALL*.

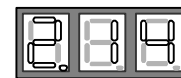


Press *TEST*
to confirm the setting.

Press *RECALL*.



Press *RECALL*.



Item number

Display flickers
at 1 second
intervals.



Value

SETTING THE MODE DISPLAY

SETTINGS MODE 1 NAVIGATION

< SCREEN 3 >

Setting Mode 1 allows the user to adjust system settings as shown in the tables at the end of this section.

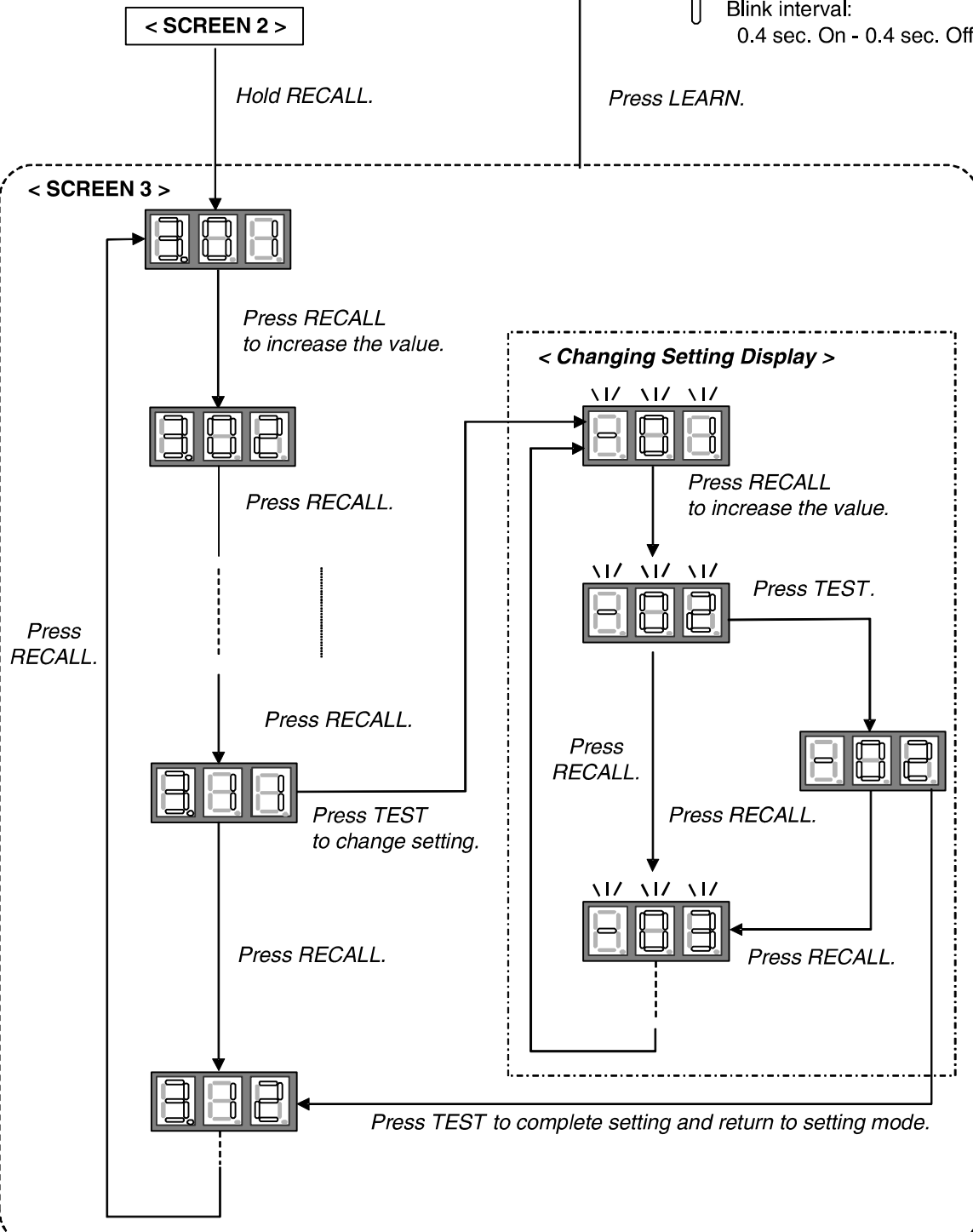
< SCREEN 0 >

OFF

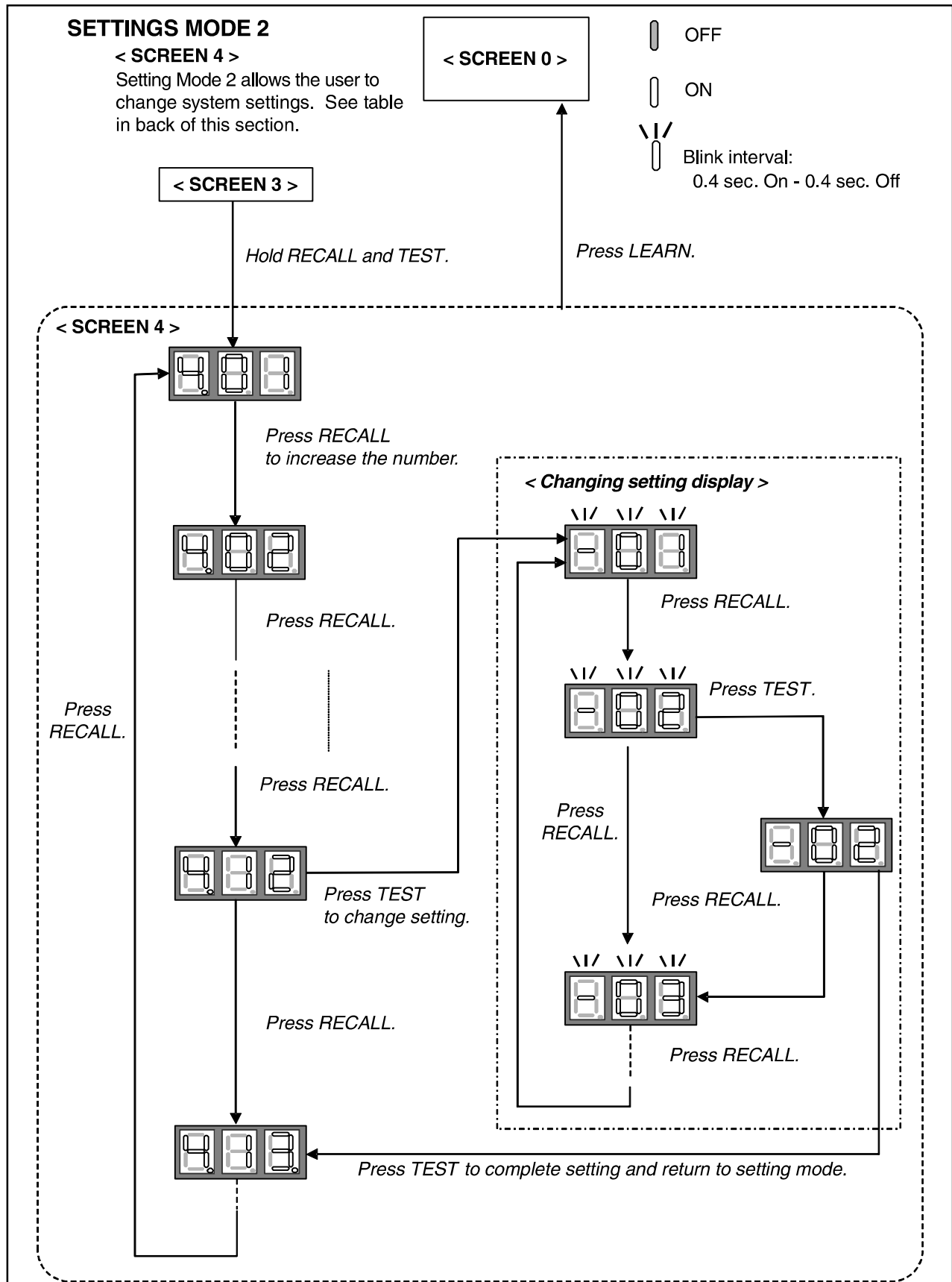
ON



Blink interval:
0.4 sec. On - 0.4 sec. Off



SETTING THE MODE DISPLAY



7-SEGMENT DISPLAY

SCREEN 0 (Display FAULT CODE)

Setting No.	Contents	Notes
1	Fault code (present)	

SCREEN 1 (Display FAULT CODES)

Setting No.	Contents	Notes
1	Fault code (latest)	Latest
2	Fault code (2nd)	2nd
3	Fault code (3rd)	3rd
4	Fault code (4th)	4th
5	Fault code (5th)	5th
6	Fault code (6th)	6th

SCREEN 2 (MONITOR MODE)

Setting No.	Contents	Notes
1	Compressor operation time	unit: hr (Multiply by 200)
2	Operation code	0: Stop 1: Cooling Start-up 3: Oil Return Operation 6: Cooling Operation
3	Compressor Reduction Mode	0:OFF, 1: ON
4	% Demand	unit: % (Cut off the decimal first place)
5	Act % demand	unit: % (Cut off the decimal first place)
6	Requested ID CFM	unit: CFM (Multiply by 10)
7	Reported ID CFM	unit: CFM (Multiply by 10)
8	Outdoor FAN RPM	unit: RPM (Multiply by 10)
9	Ta (Outdoor Air Temperature)	unit: F
10	Td (Discharge Temperature)	unit: F
11	Tm (Outdoor Coil Temperature)	unit: F
13	TI (Liquid Temperature)	unit: F
14	Pressure Sensor	unit: PSI
15	Ts (Suction Temperature)	unit: F

7-SEGMENT DISPLAY

SCREEN 3 (SETTING MODE 1)

Setting No.	Contents	Setting			Installer/Service Notes
1	Cool Airflow Trim High*2	0:-15% 1:-12% 2:-9% 3:-6% 4:-3%	<u>5:0%</u> 6:3% 7:6%	8:9% 9:12% 10:15%	
2	Cool Airflow Trim Int	0:-15% 1:-12% 2:-9% 3:-6% 4:-3%	<u>5:0%</u> 6:3% 7:6%	8:9% 9:12% 10:15%	
3	Cool Airflow Trim Low	0:-15% 1:-12% 2:-9% 3:-6% 4:-3%	<u>5:0%</u> 6:3% 7:6%	8:9% 9:12% 10:15%	
4	Cool Profile	0:A 1:B	2:C	<u>3:D</u>	
5	Cool ON Delay	<u>0:5sec.</u> 1:10sec.	2:20sec.	3:30sec.	
6	Cool OFF Delay	<u>0:30sec.</u> 1:60sec.	2:90sec.	3:120sec.	
7	Dehumidification Select	<u>0:ON</u>	1:OFF		

SCREEN 4 (SETTING MODE 2)

Setting No.	Contents	Setting		Installer/Service Notes
2	Set Maximum Current	N/A		Future Use
3	Vertical Rise	0:Same Level <u>1:Outdoor Lower</u> 2:Indoor Lower		
4	System Verification Test	0:ON	<u>1:OFF</u>	
9	Charge Mode	0:ON	<u>1:OFF</u>	
10	Maximum Compressor RPS for Cooling	*		
12	BOOST MODE Selection	<u>0:ON</u>	1:OFF	
13	BOOST MODE Temperature	0:105F, <u>1:100F</u> , 2:95F, 3:90F, 4:85F, 5:80F, 6:75F, 7:70F, 8:Always ON		
15	Night mode	<u>0:OFF</u>	1:ON	
16	Noise down level	0:LEVEL1 2:LEVEL3	<u>1:LEVEL2</u>	
17	Night mode start	<u>0:-2Hour</u> , 1:-1Hour, 2:Standard, 3:+1Hour, 4:+2Hour		
18	Night mode end	0:-2Hour, 1:-1Hour, 2:Standard, 3:+1Hour, <u>4:+2Hour</u>		
19	Capacity priority	0:OFF	<u>1:ON</u>	

* See service manual for detailed information.

*2 3.0 Ton with D*80VC0603B/0803B, D*80VC0804C and MBVC1200 combination trim 9:12% and 10:15% settings are invalid. Trimmed up CFM makes miss matching error.

NOTE: Parameters as per factory setting are highlighted in bold and underlined.

SPLIT SYSTEMS

AIR CONDITIONING HOMEOWNER'S ROUTINE MAINTENANCE RECOMMENDATIONS

We strongly recommend a bi-annual maintenance checkup be performed before the heating and cooling seasons begin by a qualified servicer.

REPLACE OR CLEAN FILTER

IMPORTANT NOTE: Never operate unit without a filter installed as dust and lint will build up on internal parts resulting in loss of efficiency, equipment damage and possible fire.

An indoor air filter must be used with your comfort system. A properly maintained filter will keep the indoor coil of your comfort system clean. A dirty coil could cause poor operation and/or severe equipment damage.

Your air filter or filters could be located in your furnace, in a blower unit, or in "filter grilles" in your ceiling or walls. The installer of your air conditioner can tell you where your filter(s) are, and how to clean or replace them.

Check your filter(s) at least once a month. When they are dirty, replace or clean as required. Disposable type filters should be replaced. Reusable type filters may be cleaned.

You may want to ask your dealer about high efficiency filters. High efficiency filters are available in both electronic and non-electronic types. These filters can do a better job of catching small airborne particles.

COMPRESSOR

The compressor motor is hermetically sealed and does not require additional oiling.

MOTORS

Indoor and outdoor fan motors are permanently lubricated and do not require additional oiling.

CLEAN OUTSIDE COIL (QUALIFIED SERVICER ONLY)



WARNING

HIGH VOLTAGE!

DISCONNECT ALL POWER BEFORE SERVICING.
MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



Air must be able to flow through the outdoor unit of your comfort system. Do not construct a fence near the unit or build a deck or patio over the unit without first discussing your plans with your dealer or other qualified servicer. Restricted airflow could lead to poor operation and/or severe equipment damage.

Likewise, it is important to keep the outdoor coil clean. Dirt, leaves, or debris could also restrict the airflow. If cleaning of the outdoor coil becomes necessary, hire a qualified servicer. Inexperienced people could easily puncture the tubing in the coil. Even a small hole in the tubing could eventually cause a large loss of refrigerant. Loss of refrigerant can cause poor operation and/or severe equipment damage.

Do not use an air conditioner cover to "protect" the outdoor unit during the winter, unless you first discuss it with your dealer. Any cover used must include "breathable" fabric to avoid moisture buildup.

BEFORE CALLING YOUR SERVICER

- Check the thermostat to confirm that it is properly set.
- Wait 15 minutes. Some devices in the outdoor unit or in programmable thermostats will prevent compressor operation for awhile, and then reset automatically. Also, some power companies will install devices which shut off air conditioners for several minutes on hot days. If you wait several minutes, the unit may begin operation on its own.
- Check the electrical panel for tripped circuit breakers or failed fuses. Reset the circuit breakers or replace fuses as necessary.
- Check the disconnect switch near the indoor furnace or blower to confirm that it is closed.
- Check for obstructions on the outdoor unit. Confirm that it has not been covered on the sides or the top. Remove any obstruction that can be safely removed. If the unit is covered with dirt or debris, call a qualified servicer to clean it.
- Check for blockage of the indoor air inlets and outlets. Confirm that they are open and have not been blocked by objects (rugs, curtains or furniture).
- Check the filter. If it is dirty, clean or replace it.
- Listen for any unusual noise(s), other than normal operating noise, that might be coming from the outdoor unit. If you hear unusual noise(s) coming from the unit, call a qualified servicer.



CAUTION

TO AVOID THE RISK OF EQUIPMENT DAMAGE OR FIRE, INSTALL THE SAME AMPERAGE BREAKER OR FUSE AS YOU ARE REPLACING. IF THE CIRCUIT BREAKER OR FUSE SHOULD OPEN AGAIN WITHIN THIRTY DAYS, CONTACT A QUALIFIED SERVICER TO CORRECT THE PROBLEM.

IF YOU REPEATEDLY RESET THE BREAKER OR REPLACE THE FUSE WITHOUT HAVING THE PROBLEM CORRECTED, YOU RUN THE RISK OF SEVERE EQUIPMENT DAMAGE.



Start-up Checklist For Unitary Inverter

**Store in job file*

Date: _____

Model Number: _____

Serial Number: _____

Technician: _____

Pre Start-Up

(Check each item as completed)

- ☐ Verify all packaging material has been removed.
- ☐ Remove all shipping brackets per installation instructions.
- ☐ Verify the job site voltage agrees with the unit serial plate.
- ☐ Verify condensate connection is installed per installation instructions.
- ☐ Verify proper clearance around the unit for safety, service, maintenance and proper unit operation.
- ☐ Verify proper weatherproofing of all ductwork, roof curbs and electrical connections.
- ☐ Check line set for leaks.
- ☐ Verify gas pressure to the unit is within the range specified on the serial plate.
- ☐ Check to ensure that all fan blades and wheels are secure.
- ☐ Check refrigerant piping for rubbing and leaks. *Repair if necessary.*
- ☐ Check unit wiring to ensure it is not in contact with refrigerant piping or sharp metal edges.
- ☐ Check all electrical connections and terminals. *Tighten as needed.*
- ☐ Verify that the outdoor unit has been energized for 2 hours.
- ☐ Verify all accessories are installed and operating correctly.
- ☐ Check filters and replace if necessary.
- ☐ Verify the installation of the thermostat. The CTK04AE or newer is the only approved thermostat for the unitary inverter unit.

3/2015



Start-up Checklist For Unitary Inverter

Start-Up

(Insert the values as each item is completed.)

ELECTRICAL

Supply Voltage L1 - L2 _____

BLOWER EXTERNAL STATIC PRESSURE

Return Air Static Pressure	_____	IN. W.C.
Supply Air Static Pressure	_____	IN. W.C.
Total External Static Pressure	_____	IN. W.C.
Air Flow	_____	CFM

TEMPERATURES

Outdoor Air Temperature	_____	DB	_____	WB
Return Air Temperature	_____	DB	_____	WB
Cooling Supply Air Temperature	_____	DB	_____	WB

PRESSURES

Suction line	_____	PSIG	_____	°F
Superheat / Subcooling	_____		_____	°F
Liquid line	_____	PSIG	_____	°F

Start-Up

(Fill in the blanks
from the
Status Screen
on the
CTK04 Thermostat)

...ComfortNet User Menu > Outdoor Unit > Status

Previous Menu

Help

TS: _____ hr

MD: Cooling

CRM: _____

RAD: _____ %, _____ %

RAF: _____ CFM, _____ CFM

ATOF: _____ F, _____ RPM

DCT _____ F, _____ F

DLT _____ F, _____ F

PSDST: _____ PSI _____ F

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NOTE: SPECIFICATIONS AND PERFORMANCE DATA LISTED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE

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- Warranties
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- Parts
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