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INSTALLATION AND SERVICE MANUAL

Ductless Chilled Water Ceiling Cassette
Models SCW & CCW

⚠ WARNING

1. Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death, and could cause exposure to substances which have been determined by various state agencies to cause cancer, birth defects or other reproductive harm. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

⚠ AVERTISSEMENT

1. Une installation, un réglage, une altération, une réparation ou une maintenance impropre risque de causer des dommages, des blessures ou la mort, et d'engendrer une exposition à des substances dont certains États ont déterminé qu'elles étaient cancérogènes ou pouvaient causer des malformations à la naissance et des problèmes de reproduction. Lisez bien les instructions d'installation, d'utilisation et de maintenance avant d'installer ou de réparer cet appareil.

IMPORTANT

1. The use of this manual is specifically intended for a qualified installation and service agency. A qualified installation and service agency must perform all installation and service of these appliances.

IMPORTANT

1. Ce manuel est spécifiquement destiné au personnel d'une entreprise qualifiée d'installation et d'entretien. Toutes les opérations d'installation et d'entretien doivent être confiées à une entreprise qualifiée.

THIS MANUAL IS THE PROPERTY OF THE OWNER.
PLEASE BE SURE TO LEAVE IT WITH THE OWNER WHEN YOU LEAVE THE JOB.

IMPORTANT

1. This appliance is not intended to be operated or serviced by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
2. Children should be supervised to ensure that they do not play with the appliance.

IMPORTANT

1. Cet appareil n'est pas conçu pour être utilisé ou entretenu par des personnes (y compris des enfants) dont les capacités physiques, sensorielles ou mentales sont réduites, ou qui n'ont pas l'expérience et les connaissances suffisantes, à moins d'être supervisées ou d'avoir obtenu des directives concernant l'utilisation de l'appareil par une personne responsable de leur security..
2. Les enfants doivent être supervisés pour s'assurer qu'ils ne jouent pas avec l'appareil.

INSPECTION ON ARRIVAL

1. Inspect unit upon arrival. In case of damage, report immediately to transportation company and your local factory sales representative.
2. Check serial plate on unit to verify that the power supply meets available electric power at the point of installation.
3. Inspect unit upon arrival for conformance with description of product ordered (including specifications where applicable)

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SPECIAL PRECAUTIONS

SPECIAL PRECAUTIONS

THE INSTALLATION AND MAINTENANCE INSTRUCTIONS IN THIS MANUAL MUST BE FOLLOWED TO PROVIDE SAFE, EFFICIENT, AND TROUBLE-FREE OPERATION. IN ADDITION, PARTICULAR CARE MUST BE EXERCISED REGARDING THE SPECIAL PRECAUTIONS LISTED BELOW. FAILURE TO PROPERLY ADDRESS THESE CRITICAL AREAS COULD RESULT IN PROPERTY DAMAGE OR LOSS, PERSONAL INJURY, OR DEATH. THESE INSTRUCTIONS ARE SUBJECT TO ANY MORE RESTRICTIVE LOCAL OR NATIONAL CODES.

PRÉCAUTIONS PARTICULIÈRES

LES INSTRUCTIONS D'INSTALLATION ET D'ENTRETIEN DE CE MANUEL DOIVENT ÊTRE OBSERVÉES POUR ASSURER UN FONCTIONNEMENT SÉCURITAIRE, EFFICACE ET FIABLE. DE PLUS, LES PRÉCAUTIONS PARTICULIÈRES CI-APRÈS DOIVENT ÊTRE RIGOUREUSEMENT RESPECTÉES. SINON, IL Y AURAIT RISQUE DE DÉGÂTS MATÉRIELS OU DE PERTE, DE BLESSURE PERSONNELLE OU DE MORT D'HOMME. CES INSTRUCTIONS SONT SUJETTES À TOUTE DISPOSITION PLUS RESTRICTIVE DES CODES PROVINCIAL OU NATIONAL.

HAZARD INTENSITY LEVELS

1. **DANGER:** Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.
2. **WARNING:** Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.
3. **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.
4. **IMPORTANT:** Indicates a situation which, if not avoided, MAY result in a potential safety concern.

HIÉRARCHIE DES NIVEAUX DE RISQUES

1. **DANGER:** Indique un danger imminent qui, s'il n'est pas évité, entraînera INÉVITABLEMENT des blessures graves, voire mortelles.
2. **AVERTISSEMENT:** Indique un danger potentiel qui, s'il n'est pas évité, RISQUE d'entraîner des blessures graves, voire mortelles.
3. **ATTENTION:** Indique un danger potentiel qui, s'il n'est pas évité, PEUT entraîner des blessures mineures ou modérées.
4. **IMPORTANT:** Indique une situation qui, si elle se matérialise, PEUT entraîner des risques pour la sécurité des personnes.

⚠ DANGER

Appliances must not be installed where they may be exposed to potentially explosive or flammable atmosphere.

⚠ DANGER

Les appareils ne doivent pas être installés à un endroit où ils risquent d'être exposés à une atmosphère potentiellement explosive ou inflammable.

⚠ WARNING

1. Disconnect power supply before making wiring connections or working on this equipment. Follow all applicable safety procedures to prevent accidental power up. Failure to do so can result in injury or death from electrical shock or moving parts and may cause equipment damage.
2. All appliances must be wired strictly in accordance with the wiring diagram furnished with the appliance. Any wiring different from the wiring diagram could result in a hazard to persons and property.
3. Any original factory wiring that requires replacement must be replaced with wiring material having a temperature rating of at least 221°F (105°C).
4. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% greater than rated voltage.
5. When servicing or repairing this equipment, use only factory-approved service replacement parts. Refer to the rating plate on the appliance for complete appliance model number, serial number, and company address. Any substitution of parts or controls not approved by the factory will be at the owner's risk.

⚠ AVERTISSEMENT

1. Débranchez l'alimentation électrique avant d'effectuer des connexions ou de travailler sur l'appareil. Respectez toutes les procédures de sécurité qui s'appliquent pour éviter toute mise en marche accidentelle. Le non-respect de cette directive peut entraîner des blessures ou la mort causées par un choc électrique ou des pièces mobiles, en plus d'endommager l'appareil.
2. Tous les appareils doivent être branchés de manière strictement conforme au diagramme fourni. Tout câblage différent de celui du schéma peut créer des risques de dommages matériels ou de blessures.
3. Tout câblage usine d'origine exigeant un remplacement doit être remplacé par un câble d'indice thermique nominal de 221 °F (105 °C).
4. Assurez-vous que la tension d'alimentation de l'appareil, comme indiqué sur la plaque de série, n'est pas de 5 % supérieure à la tension nominale.
5. Pour l'entretien et les réparations de cet appareil, utilisez uniquement des pièces d'origine certifiées. Pour la liste complete des pièces de rechange, consultez Modine Manufacturing Company. Le numéro de modèle complet, le numéro de série et l'adresse du fabricant figurent sur la plaque signalétique fixée à l'appareil. Toute substitution de pièce ou decommande non approuvée par le fabricant sera aux risques du propriétaire.

SPECIAL PRECAUTIONS

⚠ CAUTION

1. Units not approved for use in potable water systems.
2. Hot water supplied to the hot water heating option must not exceed 200ºF (93°C) temperature or 125 PSIG (862 kPa) pressure.
3. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% less than the rated voltage.
4. In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.
5. Do not attempt to reuse any mechanical or electrical component which has been wet. Such component must be replaced.
6. When servicing the unit, some components may be hot enough to cause pain or injury. Allow time for cooling of hot components before servicing.

⚠ ATTENTION

1. Ces unités ne sont pas approuvées pour l'usage dans des systoles à eau potable.
2. La température de l'eau chaude alimentée en vertu de l'option de chauffage de l'eau chaude ne doit pas dépasser 200 °F (93 °C) ou une pression de 125 lb/po² (862 kPa).
3. Vérifiez que la tension d'alimentation de l'appareil n'est pas inférieure de plus de 5 % à la tension nominale inscrite sur la plaque de série.
4. Afin d'éviter tout danger causé par la réinitialisation involontaire du coupe-circuit thermique, cet appareil ne doit pas être alimenté par l'entremise d'un dispositif de commutation externe, comme une minuterie, ou relié à un circuit qui est régulièrement mis en marche et coupé par le service public.
5. Ne tentez pas de réutiliser un composant mécanique ou électrique qui a été mouillé. Ces composants doivent être remplacés.
6. Durant l'entretien de l'unité, certains composants peuvent être assez chauds pour causer de la douleur ou une blessure. Laissez les composants chauds se refroidir avant de procéder à tout entretien.

IMPORTANT

1. Unit Performance will be significantly reduced at or above 7215 ft (2200 m) and should not be operated above this altitude.
2. For ceiling mounted units, check that the ceiling is capable of supporting the weight of the unit. If used within a ceiling grid, the ceiling grid is to be supported separately from the unit.
3. No water-flow can cause a freeze condition resulting in damage to the coil.
4. Never leave the unit filled with water in a building without heat unless antifreeze has been added.
5. Start up and adjustment procedures, installation, and service of these appliances must be performed by a qualified installation and service agency.
6. To check most of the Possible Remedies in the Troubleshooting guide listed in Table 33.1, refer to the applicable sections of the manual.

IMPORTANT

1. La performance de l'unité sera grandement réduite à une altitude de 7215 pieds (2200 m) et elle ne doit pas être utilisée au-delà de cette hauteur.
2. Pour les unités installées au plafond, vérifiez que le plafond peut soutenir le poids de l'unité. En cas d'utilisation au sein d'un support de plafond, ce dernier doit être soutenu séparément de l'unité.
3. L'absence d'écoulement d'eau risque de causer une condition de gel et d'endommager le serpentin.
4. Ne laissez jamais l'appareil rempli d'eau dans un immeuble non chauffé sans lui ajouter de l'antigel.
5. Les procédures de démarrage et de réglage, l'installation et le service de ces appareils doivent être confiés à un centre d'installation et de service qualifié.
6. Pour essayer la plupart des solutions possibles suggérées dans le guide de dépannage du Table 33.1, reportez-vous aux sections correspondantes du manuel.

Table 4.1 - SI (Metric) Conversion Factors

To Convert	Multiply By	To Obtain	To Convert	Multiply By	To Obtain
"W.C.	0.24	kPa	CFH	1.699	m^3/min
psig	6.893	kPa	Btu/ft^3	0.0374	mJ/m^3
°F	(°F-32) x 0.555	°C	pound	0.453	kg
inches	25.4	mm	Btu/hr	0.000293	kW
feet	0.305	meters	gallons	3.785	liters
CFM	0.028	m^3/min	psig	27.7	"W.C.

SPECIAL DESIGN REQUESTS

Units are sometimes built units with special features as requested by the customer. This manual only covers standard features and does not include any changes made for special feature requests by the customer. Units built with special features are noted with a 5-digit SPO (Special Product Order) Number on the Serial Plate.

UNIT LOCATION

UNIT LOCATION

⚠ DANGER

Appliances must not be installed where they may be exposed to potentially explosive or flammable atmosphere.

⚠ DANGER

Les appareils ne doivent pas être installés à un endroit où ils risquent d'être exposés à une atmosphère potentiellement explosive ou inflammable.

IMPORTANT

Unit Performance will be significantly reduced at or above 7215 ft (2200 m) and should not be operated above this altitude.

IMPORTANT

La performance de l'unité sera grandement réduite à une altitude de 7215 pieds (2200 m) et elle ne doit pas être utilisée au-delà de cette hauteur.

Unpacking

Remove the banding straps and lift the cardboard lid. Remove the fascia, packed in bubble wrap, and polystyrene packing pieces to expose the unit.

When removing the unit chassis from the box, the four corner brackets should be utilized for lifting. In order to protect the fascia from dirt and damage, it should be returned to the box until it is ready to be installed.

Blank Off Pieces

When supply air branch ducting is to be used, polystyrene pieces for blanking off fascia openings are included with the fascia packing. Up to two opposing sides may be blanked off. See Installation – Duct Collars on page 7.

Preparation

Before any installation work commences, the condensing unit location (where applicable), pipe work sizes and routes should be designed in accordance with good refrigeration practice.

When locating the unit, consider the following:

1. Ensure the ceiling structure that is adequate for the required mounting provisions as outlined in the "INSTALLATION" section. Check the ceiling is capable of supporting the total weight of the unit, piping, refrigerant and condensate.
2. Before installation, ensure that the correct electrical power supplies are available for the unit.
3. Piping, electrical panel and condensate pump access panel should be readily accessible for maintenance purposes. A clearance of 2 ft (0.61 m) is recommended around the electrical panel and condensate pump access panel.
4. The unit should not be positioned less than 5 ft (1.5 m) from a wall or similar obstruction, or in a position where the discharge air could blow directly on to the thermostat.
5. The unit should not be positioned directly above any obstructions.
6. For units with supplementary electric heat (Digit 9 = A), the minimum clearance from the unit to combustible surfaces is 0 in (0cm).
7. The unit must be installed square and level.
8. The condensate drain should have downward slope (1 in per 100 in (2.54 cm per 254 cm)) in a horizontal run between unit and drain. Maximum condensate pump lift is 30 in (76.2 cm).
9. There should be sufficient room above the false ceiling for installing the unit. Minimum distance as shown in Figure 5.1 and Table 5.1.
10. In case of high humidity, clogged or damaged condensate piping, incorrect installation or faulty condensate pump, water may drip from the unit. Do not install the appliance where dripping water can cause damage.

Figure 5.1 - Minimum Distance to Ceiling

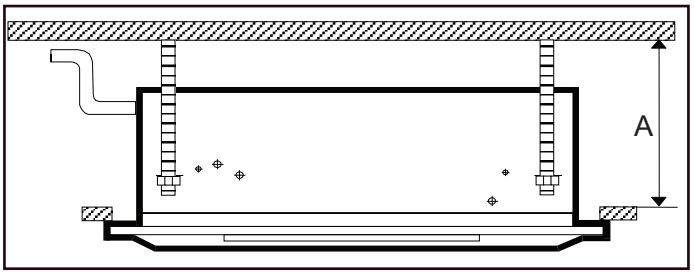


Table 5.1 - Minimum Distance to Ceiling

Unit Configuration (Digits 2,3)	Nominal Capacity (Digits 4,5)	A	
CW	08 & 12	12.75 in	32.40 cm
	18	11.50 in	29.20 cm
	36	13.50 in	34.30 cm

Ceiling Opening Sizes

An opening in the false ceiling will then have to be cut to the size shown in Table 5.2.

Table 5.2 - Ceiling Opening Sizes

Unit Configuration (Digits 2,3)	Nominal Capacity (Digits 4,5)	L x W	
CW	08 & 12	23.00 in x 23.00 in	58.42 cm x 58.42 cm
	18	34.00 in x 34.00 in	86.36 cm x 86.36 cm
	36	46.00 in x 34.00 in	116.8 cm x 86.36 cm

Positioning Wall Mounted Thermostat

For proper temperature control, the thermostat should be mounted as follows:

1. Position the thermostat approximately 48 in (122 cm) above floor level.
2. Do not position thermostat where it can be directly affected by the unit's discharge air stream.
3. Avoid external walls and drafts from windows and doors.
4. Avoid positioning near shelves and curtains as these restrict air movement.
5. Avoid heat sources e.g. direct sunlight, heaters, dimmer switches and other electrical devices.

INSTALLATION

Installation

IMPORTANT

For ceiling mounted units, check that the ceiling is capable of supporting the weight of the unit. If used within a ceiling grid, the ceiling grid is to be supported separately from the unit.

IMPORTANT

Pour les unités installées au plafond, vérifiez que le plafond peut soutenir le poids de l'unité. En cas d'utilisation au sein d'un support de plafond, ce dernier doit être soutenu séparément de l'unité.

Hanger Bolts

The hanger bolts can now be installed (use 3/8" all thread rod) at the centers shown in Figure 6.1 and Figure 6.2.

Figure 6.1 - Hanger Bolt Mounting Dimensions

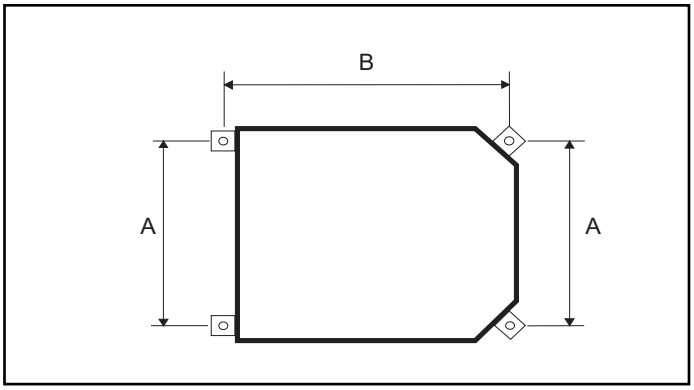


Table 6.1 - Hanger Bolt Mounting Dimensions

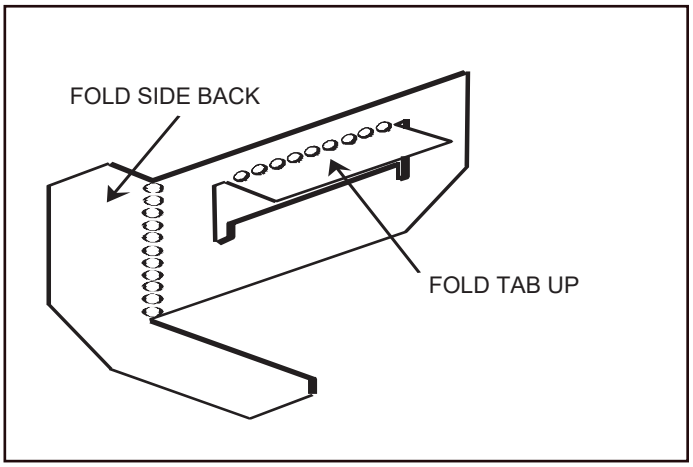
Unit Configuration (Digits 2,3)	Nominal Capacity (Digits 4,5)	A		B	
CW	08, 12	19.5 in	49.5 cm	23.0 in	58.4 cm
	18	28.5 in	72.4 cm	31.5 in	80.0 cm
	36	28.5 in	72.4 cm	43.5 in	110.5 cm

Refer to the manufacturer's hanger bolts technical sheet to check the strength of the unit mounting hanger bolts. Ensure the bolts can hold the weight of the unit. Refer to Table 24.1 and Table 25.1 for unit weights.

Installation Guide

An installation guide is included in the Owner Information packet provided with the unit. The installation guide sets the proper height between the chassis and ceiling. Prepare the installation guide by folding the flat metal piece, by hand, along the perforations as shown in Figure 6.2.

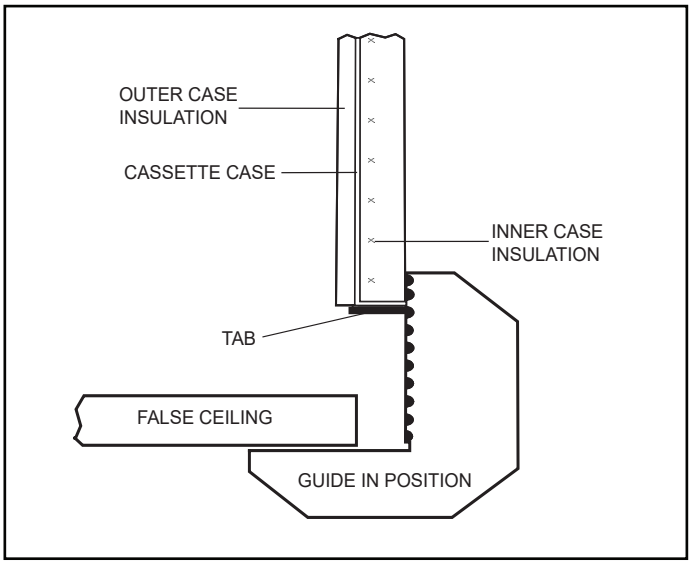
Figure 6.2 - Installation Guide Setup



Use an adequate number of personnel when moving the unit. A lifting device or at least two personnel should be used to lift the unit. The unit can be lifted onto the hanging rods and leveled at the correct distance from the ceiling with the aid of the installation guide.

1. Hold the tab on the installation guide against the bottom of the cassette case with the guide pointing away from the cassette. See Figure 6.3.
2. Adjust the height of the cassette until the guide is level with the bottom of the false ceiling.

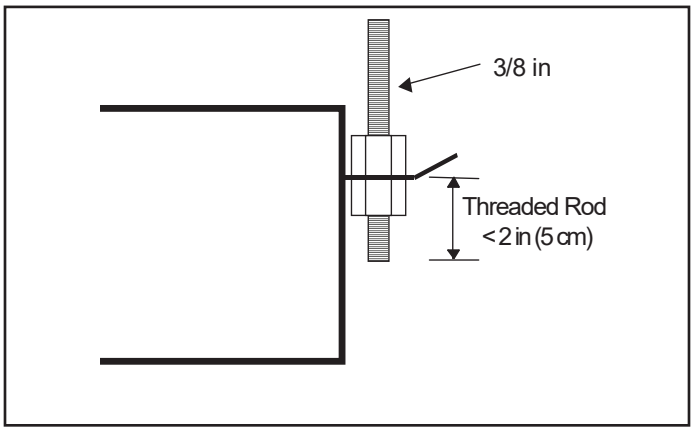
Figure 6.3 - Installation Guide Position



3. Secure the unit in position with locknuts and washers on both sides of the unit bracket. It is recommended to have two 3/8" locknuts and washers on the bottom of the threaded rod. Ensure the threaded rod does not protrude more than 2 in (5 cm) below the mounting bracket as shown in Figure 7.1.

INSTALLATION

Figure 7.1 - Threaded Rod Dimension



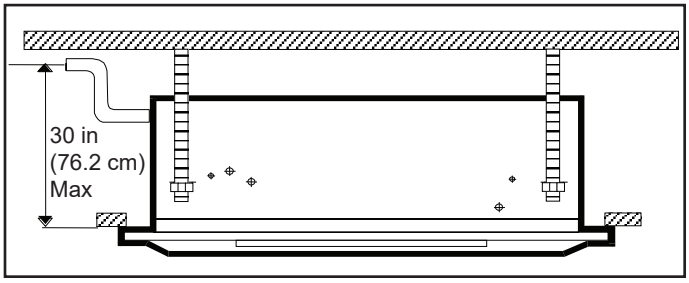
Condensate Piping

The unit is supplied with a 3/8" ID flexible hose for connection to copper or plastic drain piping.

When installing the unit consider the following:

1. Maximum pump lift is 30 in (76.2 cm).
2. The highest point in the condensate piping should be as close to the unit as possible.
3. Condensate piping should slope downwards in the direction of water flow with a minimum gradient of 1 in per 100 in (2.54 cm per 254 cm). There must not be any upward gradients other than in the first 30 in (76.2 cm) of piping from the unit. Once the piping begins the downward gradient, the piping must continue to be in a downward gradient. See Figure 7.2.

Figure 7.2 - Condensate Piping



4. When multiple units are connected to a common condensate drain, ensure the drain is large enough to contain the volume of condensate from all units. It is recommended to have an air vent in the condensate piping to prevent any air locks.
5. Condensate piping must not be installed where it may be exposed to freezing temperatures.

Duct Collars

Supply air branch duct and outside air duct collars can be attached to the unit chassis by following the below steps:

Supply Air Duct Collars:

1. Up to two supply air ducts can be attached per unit.
2. Place the polystyrene blanking strip in the fascia supply air opening on the same side where the supply duct collar is to be installed.

Outside Air Duct Collars:

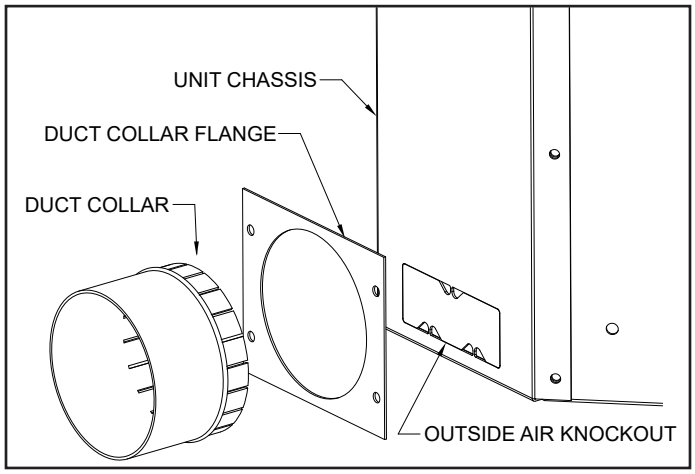
Note: *For detailed installation instrucitons of the outside air duct collars, refer to literature 8-509 included in the fresh air kit.*

1. Two outside air openings are available on small casing sizes (size 08 & 12). Three outside air openings are available on medium and large casing sizes (size 18 and higher).
2. Ensure a MERV 10 or MERV 13 pleated filter is being used with the fresh air duct collar kit.
3. To maximize the amount of outside air through the knockouts, use all available fresh air openings, the pleated filter, and high fan speed.

Installing Outside and/or Supply Air Duct Collars:

1. Refer to the dimensional drawing on page 21 through page 23 for knock-out hole locations.
2. The insulation is pre-cut to aid location and removal of the relevant section. Rub hand across surface of insulation to reveal exact location of knock-out.
3. Remove the metal knockout from the chassis.
4. Place the duct collar's tabs inside the duct collar flange's opening. Bend the tabs around the duct collar flange's opening.
5. Using field provided self-tapping screws, attach the duct flange and collar to the chassis with the bent tabs being sealed in between the unit chassis and duct collar flange. See Figure 7.3 for duct collar assembly.

Figure 7.3 - Duct Collar Assembly



Note: *See Figure 21.1, Figure 22.1, and Figure 23.1 for Branch Duct and Fresh Air Duct locations and dimensions.*

INSTALLATION

Piping Installation

Piping Installation – Hot/Chilled Water Coils

⚠ CAUTION

1. Units not approved for use in potable water systems.
2. Hot water supplied to the hot water heating option must not exceed 200ºF (93°C) temperature or 125 PSIG (862 kPa) pressure.

⚠ ATTENTION

1. Ces unités ne sont pas approuvées pour l'usage dans des systèmes à eau potable.
2. Ne laissez jamais l'appareil rempli d'eau dans un immeuble non chauffé sans lui ajouter de l'antigel.

IMPORTANT

1. No water-flow can cause a freeze condition resulting in damage to the coil.
2. Never leave the unit filled with water in a building without heat unless antifreeze has been added.

IMPORTANT

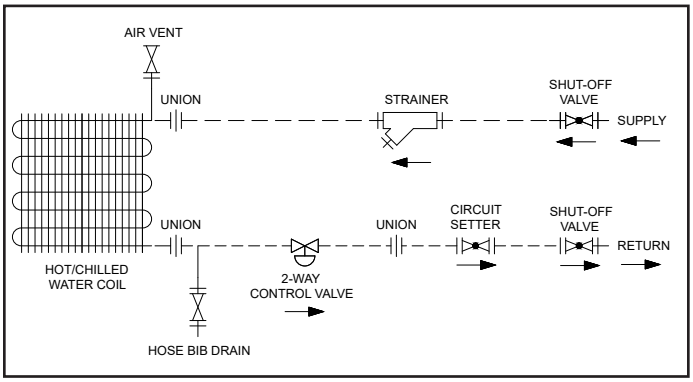
1. L'absence d'écoulement d'eau risque de causer une condition de gel et d'endommager le serpentin.
2. Ne laissez jamais l'appareil rempli d'eau dans un immeuble non chauffé sans lui ajouter de l'antigel.

1. Branch piping to and from the unit should include swing joints to allow for expansion and contraction of the piping without placing a strain on the unit coil.
2. Install pipe unions and shut-off valves in lines to and from each coil to allow maintenance or replacement of unit without shutting down and draining entire system. See Figure 8.1.
3. Include a circuit setter in return line for water flow regulation.
4. If the unit is located in an area subject to freezing, it is recommended a drain valve (hose bib) is field provided and installed for each coil line to allow removal of water from the coil.
5. A pipe line strainer is recommended before each coil.
6. Provide adequate pipe hangers, supports, or anchors to secure the piping system independently of the unit.
7. On 2-pipe systems with microprocessor controls (Model Digit 8=M), install the factory provided changeover sensor on the main supply water line upstream from the unit where water maintains flow to ensure accurate readings of water temperature. Wire extension and a plug are included.
8. Allow chilled water to enter the unit and vent air from the unit by opening the 1/4" air bleed. Re-tighten the bleed screw once all air has been removed.

Note:

1. For models with digits 4,5 = 08 or 36, the HW coil is in reheat position.
2. For models with digits 4,5 = 18, the HW coil is in the preheat position
3. Hot water heating is not available for models with digit 4,5 = 12.

Figure 8.1 - Hot/Chilled Water Coil Piping Installation



1. Piping components are to be field installed

Piping Insulation

Chilled water and condensate pipes should be insulated right up to the unit chassis to prevent condensation which can damage the ceiling and objects located below the piping. Chilled water valves must also be insulated to prevent sweating.

INSTALLATION

Wiring

⚠ WARNING

1. Disconnect power supply before making wiring connections or working on this equipment. Follow all applicable safety procedures to prevent accidental power up. Failure to do so can result in injury or death from electrical shock or moving parts and may cause equipment damage.
2. All appliances must be wired strictly in accordance with the wiring diagram furnished with the appliance. Any wiring different from the wiring diagram could result in a hazard to persons and property.
3. Any original factory wiring that requires replacement must be replaced with wiring material having a temperature rating of at least 221°F (105°C).
4. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% greater than rated voltage.

⚠ AVERTISSEMENT

1. Débranchez l'alimentation électrique avant d'effectuer des connexions ou de travailler sur l'appareil. Respectez toutes les procédures de sécurité qui s'appliquent pour éviter toute mise en marche accidentelle. Le non-respect de cette directive peut entraîner des blessures ou la mort causées par un choc électrique ou des pièces mobiles, en plus d'endommager l'appareil.
2. Tous les appareils doivent être branchés de manière strictement conforme au diagramme fourni. Tout câblage différent de celui du schéma peut créer des risques de dommages matériels ou de blessures.
3. Tout câblage usine d'origine exigeant un remplacement doit être remplacé par un câble d'indice thermique nominal de 221 °F (105 °C).
4. Assurez-vous que la tension d'alimentation de l'appareil, comme indiqué sur la plaque de série, n'est pas de 5 % supérieure à la tension nominale.

⚠ CAUTION

1. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% less than the rated voltage.
2. In order to avoid a hazard due to inadvertent resetting of the thermal cut-out, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility.

⚠ ATTENTION

1. Vérifiez que la tension d'alimentation de l'appareil n'est pas inférieure de plus de 5 % à la tension nominale inscrite sur la plaque de série.
2. Afin d'éviter tout danger causé par la réinitialisation involontaire du coupe-circuit thermique, cet appareil ne doit pas être alimenté par l'entremise d'un dispositif de commutation externe, comme une minuterie, ou relié à un circuit qui est régulièrement mis en marche et coupé par le service public.

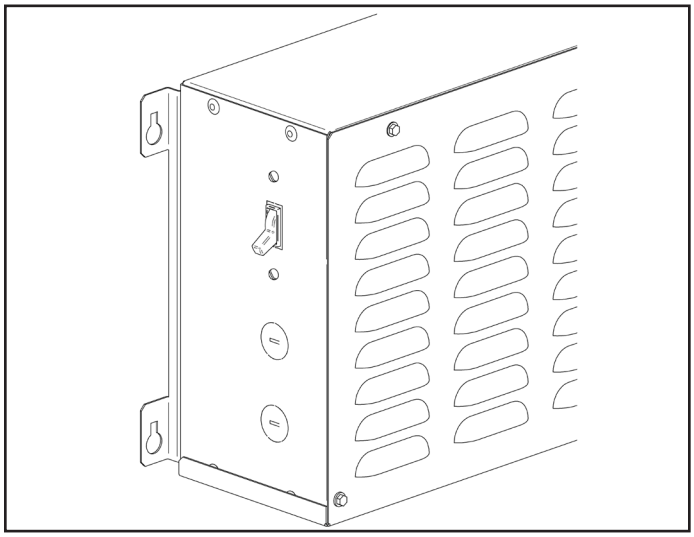
1. Installation of wiring must conform with local building codes, or in the absence of local codes, with the National Electric Code ANSI/NFPA 70 – Latest Edition. Unit must be electrically grounded in conformance to this code. In Canada, wiring must comply with CSA C22.1, Electrical Code.
2. Electric wiring must be sized to carry the full load amp draw of the motor, starter and any controls that are used with the unit.
3. External electrical service connections that must be installed include:
   a. Supply single phase power connection as indicated by Digit 6 of the nomenclature on the serial plate. Refer to nomenclature on page 31.
   b. Thermostats which are 24V supplied from the unit (Electro-Mechanical control units, Digit 8=E). For thermostats that provide a modulating signal for valve control, there must be 24V to the Y terminal and W terminal (if equipped with heating) for proper operation of unit control devices including relays and the condensate pump.
4. This equipment in its standard form is designed for an electrical supply of 208-230V, 1Ph, 60Hz. When connection to a 115V, 1Ph, 60Hz supply is necessary, a factory mounted step up transformer must be fitted to the unit.
5. Any damage to or failure of units caused by incorrect wiring of the units is not covered by warranty.
6. Once the pipe work is complete, the electrical supply can be connected by routing the cable through the appropriate knockout on the side of the control panel. Connect the supply and ground cables to the unit's power terminals. Low voltage control wiring can be run through alternate knockouts, provided in the side of the control panel.

INSTALLATION

Disconnect Switch

For models with a factory installed disconnect switch (Digit 12 = D), the switch will be installed on the side of the control panel. See Figure 21.1, Figure 22.1, and Figure 23.1 for the location of the control panel on the unit.

Figure 10.1 - Factory Installed Disconnect Switch

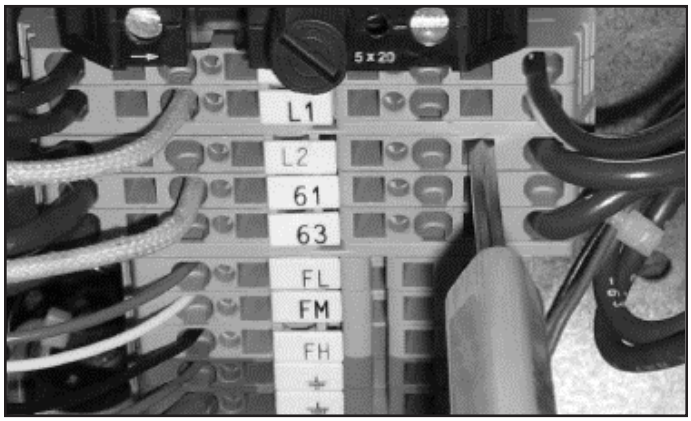


Terminal Strip Connections

The terminal strip connections are designed to clamp down on the wires. To properly connect the wires to the terminal strip:

1. Push a small flat head screwdriver into the square hole on the terminal. Press firmly until the screwdriver hits the back stop and opens the terminal. See Figure 10.2.
2. Remove approximately 3/8 in (9.5 mm) of insulation from the end of the wire and push the stripped wire into the oval hole in the terminal.
3. Remove the screwdriver. Pull on the wire to make sure that it is securely clamped in the terminal.
4. Make sure that the terminal clamp is in contact with bare wire (insulation removed).

Figure 10.2 - Terminal Strip



Fascia Assembly

1. Once the services have been connected, the four (4) fascia mounting bolts can be unscrewed approximately 1 in (2.54 cm) from the condensate tray support channels.
2. The fascia can now be unpacked for fitting to the unit chassis. Ensure the black fir tree fasteners holding the fascia polystyrene are pushed in firmly in case of transit vibration.
3. If a fascia aperture needs blanking off, then take one of the polystyrene blanking pieces and push it into the recess in the polystyrene fascia insulation. See Figure 10.3.

Note: *Up to two non-adjacent sides can be blanked off.*

Figure 10.3 - Fascia Blanking Piece

Note: *Make sure the foam insulating strip profile on the fascia matches the square and angled corners of the unit housing.*

4. Install the fascia by removing the inlet grilles and filters, locating the four fascia mounting bolts on the chassis through the four keyhole brackets on the fascia and then sliding the fascia sideways until it locks into position.
5. On microprocessor controlled units (Model Digit 8=M), ensure that the display panel cable is routed to the electrical panel and securely fastened to its connector on the microprocessor circuit board. Refer to the unit's electrical wiring schematic. Take care to ensure that the connector is connected in the proper orientation and that the wires are not routed such that they may become trapped, cut, broken or chafed.
6. The fascia can now be tightened up to the unit chassis until a good seal is obtained between fascia and chassis.

Note: *Do not over tighten the bolts. To do so may cause damage to the fascia.*

7. With filters in place, the inlet grilles can now be fitted to the fascia to complete the installation.

START-UP PROCEDURE

Start-Up Procedure

IMPORTANT

Start up and adjustment procedures, installation, and service of these appliances must be performed by a qualified installation and service agency.

IMPORTANT

Les procédures de démarrage et de réglage, l'installation et le service de ces appareils doivent être confiés à un centre d'installation et de service qualifié.

See start-up sheet example - Figure 16.1 and Figure 17.1.

Pre-Start Checks

Once installation is complete it is important that the following pre-start checks are made:

1. All piping is complete and insulated where necessary.
2. All fans are able to rotate freely.
3. All electrical connections (both power and control) are properly terminated.
4. All condensate drains are installed correctly.
5. The power supply is of the correct voltage and frequency.
6. The units are properly grounded in accordance with current electrical codes.
7. For microprocessor controlled units (Model Digit 8=M), check that the display panel cable is properly connected to the microprocessor main circuit board and that the jumper links are correctly set (refer to unit wiring schematic). If the links are set incorrectly, remove main power supply before making any changes.
8. For microprocessor controlled units (Model Digit 8=M), check that the batteries are installed in the infrared transmitter.

Fan Speed Settings

Electro-Mechanical controlled (Digit 8=E) units are equipped with a potentiometer to provide adjustable fan speed control. The fan can also be controlled via an external 3-10Vdc signal by others by making simple wiring changes. Both methods of motor control are described below, including the changes required to control the fan speed via an external 3-10Vdc signal.

1. For units with Electro-Mechanical controls (Digit 8=E) without an external 3-10Vdc signal for fan speed control, set the unit to the desired fan speed following the steps below.
   a. A factory installed potentiometer is located on the side of the control box.See Figure 11.1. This potentiometer adjusts the fan speed and airflow of the unit.
   b. Table 13.1, Table 13.2, Table 14.1, and Table 14.2 show which Vdc signals correspond to high, medium, and low speeds for each model size. Use these tables to determine the Vdc signal needed to obtain the desired airflow rate.
   c. Check that the unit is off and the fan is not running. Using a voltmeter, plug the voltmeter leads into the "C" terminal and "SIG" terminal located in the control panel. The voltmeter will be used to measure the voltage signal across the potentiometer and the EC motor.
   d. Turn on the unit and confirm the fan is running. The voltmeter should display a value between 3-10Vdc. Turn the potentiometer dial counter-clockwise to increase the Vdc signal (increase speed) or clockwise to decrease the Vdc signal (decrease speed). See Figure 11.2. Once the voltmeter reads the desired Vdc signal, stop turning the potentiometer dial.
   e. Turn off the unit and confirm the fan is off. Remove the voltmeter leads from the "C" and "SIG" terminals. Do not touch the potentiometer dial to avoid changing the set fan speed.

Figure 11.1 - Potentiometer Location

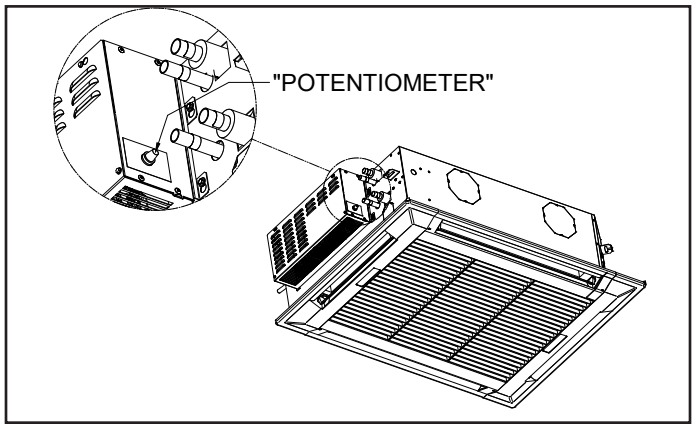
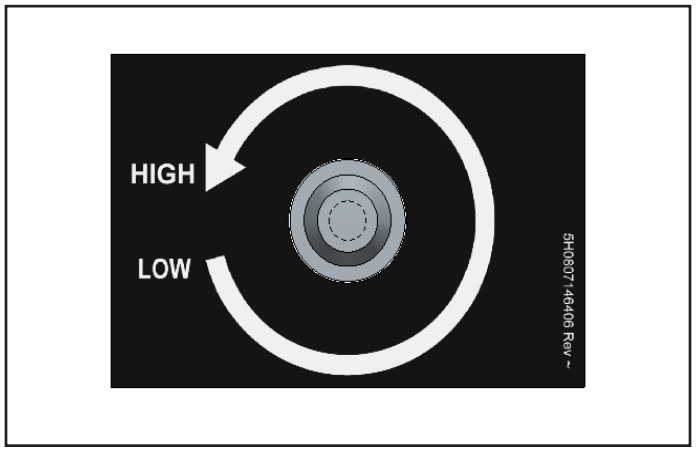


Figure 11.2 - Potentiometer Label



(continued on next page)

START-UP PROCEDURE

2. For units with Electro-Mechanical controls (Digit 8=E) using an external 3-10Vdc signal for fan speed control, set the unit to the desired fan speed following the steps below:
   a. Disconnect power to the unit. Refer to the unit's wiring diagram and locate the potentiometer (labeled as POT 1 on the wiring diagram) and wires going into the fan terminals.
   b. Disconnect the potentiometer's wires from the EC motor controller by removing the wires from terminals "C", "SIG", and "10V". See Figure 12.1 and Figure 12.2 for the wiring diagram changes. Add a wire nut to the potentiometer wires and tuck wires inside the control panel for future use.
   c. Connect the external wire providing the 3-10Vdc signal for fan speed control into the "SIG" and "C" terminals in the control panel.
   d. For proper operation, the external VDC signal should be between 3Vdc to 10Vdc. Refer to Table 13.1, Table 13.2, Table 14.1, and Table 14.2 for the corresponding Vdc signals and high, medium, and low fan speeds.
   e. Turn power back on to the unit. Provide a signal to turn on the fan and a 3-10Vdc signal for the EC motor control. Confirm the fan is running.
3. For Microprocessor controlled units (Digit 8=M), use the transmitter or touchscreen thermostat to change the fan speed between low, medium, and high speeds. The VDC signal being provided, whether by a BMS or the microprocessor controller, should always be between 3Vdc to 10Vdc.

Figure 12.1 - Ext. 3-10VDC Wiring for Models 08, 12, and 18

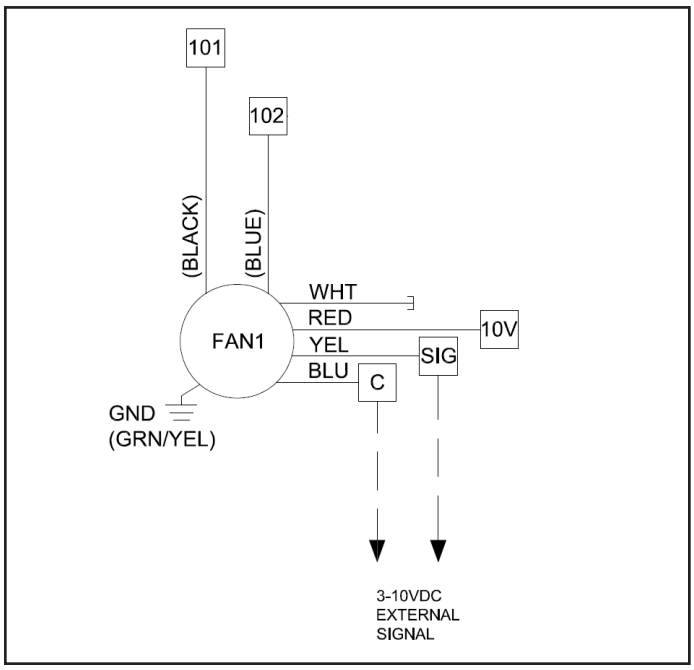
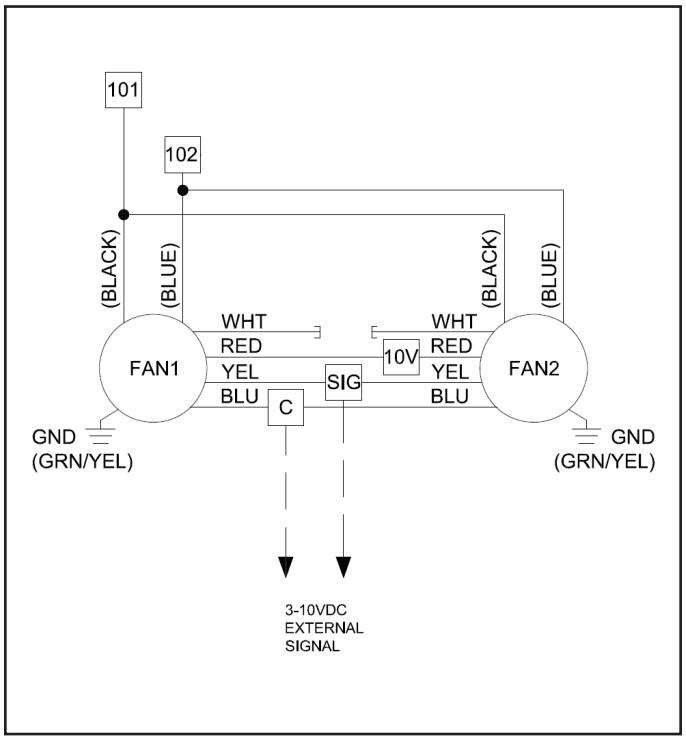


Figure 12.2 - Ext. 3-10VDC Wiring for Model 36



START-UP PROCEDURE

Table 13.1 - CW08 (Model Digits=2-5) Fan Speeds to Corresponding Vdc Signal

Filter Type (Model Digit = 10)	Voltage (V)	Fan Speed	Air Flow (CFM - m³/min)	Vdc Signal
Standard (Model Digit 10=A)	110/115/220/230/277	High	330 CFM - 9.3 m³/min	4.8
	208			
	110/115/220/230/277	Medium	300 CFM - 8.5 m³/min	4.5
	208			
	110/115/220/230/277	Low	260 CFM - 7.4 m³/min	3.9
	208			
MERV 10 (Model Digit 10=B)	110/115/220/230/277	High	330 CFM - 9.3 m³/min	6.2
	208			
	110/115/220/230/277	Medium	300 CFM - 8.5 m³/min	5.9
	208			
	110/115/220/230/277	Low	260 CFM - 7.4 m³/min	5.1
	208			
MERV 13 (Model Digit 10=C)	110/115/220/230/277	High	330 CFM - 9.3 m³/min	7.0
	208			
	110/115/220/230/277	Medium	300 CFM - 8.5 m³/min	6.7
	208			
	110/115/220/230/277	Low	260 CFM - 7.4 m³/min	5.8
	208			

Table 13.2 - CW12 (Model Digits=2-5) Fan Speeds to Corresponding Vdc Signal

Filter Type (Model Digit = 10)	Voltage (V)	Fan Speed	Air Flow (CFM - m³/min)	Vdc Signal
Standard (Model Digit 10=A)	110/115/220/230/277	High	360 CFM - 10.2 m³/min	5.5
	208			
	110/115/220/230/277	Medium	330 CFM - 9.3 m³/min	5.0
	208			
	110/115/220/230/277	Low	300 CFM - 8.5 m³/min	4.6
	208			
MERV 10 (Model Digit 10=B)	110/115/220/230/277	High	360 CFM - 10.2 m³/min	7.2
	208			
	110/115/220/230/277	Medium	330 CFM - 9.3 m³/min	6.6
	208			
	110/115/220/230/277	Low	300 CFM - 8.5 m³/min	6.1
	208			
MERV 13 (Model Digit 10=C)	110/115/220/230/277	High	360 CFM - 10.2 m³/min	7.8
	208			
	110/115/220/230/277	Medium	330 CFM - 9.3 m³/min	7.2
	208			
	110/115/220/230/277	Low	300 CFM - 8.5 m³/min	6.8
	208			

START-UP PROCEDURE

Table 14.1 - CW18 (Model Digits=2-5) Fan Speeds to Corresponding Vdc Signal

Filter Type (Model Digit = 10)	Voltage (V)	Fan Speed	Air Flow (CFM - m³/min)	Vdc Signal
Standard (Model Digit 10=A)	110/115/220/230/277	High	620 CFM - 17.6 m³/min	5.3
	208			5.8
	110/115/220/230/277	Medium	540 CFM - 15.3 m³/min	4.8
	208			5.2
	110/115/220/230/277	Low	460 CFM - 13.0 m³/min	3.8
	208			4.2
MERV 10 (Model Digit 10=B)	110/115/220/230/277	High	620 CFM - 17.6 m³/min	6.4
	208			6.9
	110/115/220/230/277	Medium	540 CFM - 15.3 m³/min	5.7
	208			6.0
	110/115/220/230/277	Low	460 CFM - 13.0 m³/min	4.6
	208			5.1
MERV 13 (Model Digit 10=C)	110/115/220/230/277	High	620 CFM - 17.6 m³/min	7.0
	208			7.7
	110/115/220/230/277	Medium	540 CFM - 15.3 m³/min	6.2
	208			6.8
	110/115/220/230/277	Low	460 CFM - 13.0 m³/min	5.2
	208			5.6

Table 14.2 - CW36 (Model Digits=2-5) Fan Speeds to Corresponding Vdc Signal

Filter Type (Model Digit = 10)	Voltage (V)	Fan Speed	Air Flow (CFM - m³/min)	Vdc Signal
Standard (Model Digit 10=A)	110/115/220/230/277	High	1080 CFM - 30.6 m³/min	5.3
	208			5.8
	110/115/220/230/277	Medium	940 CFM - 26.6 m³/min	4.9
	208			5.4
	110/115/220/230/277	Low	740 CFM - 21.0 m³/min	3.6
	208			4.0
MERV 10 (Model Digit 10=B)	110/115/220/230/277	High	1080 CFM - 30.6 m³/min	6.1
	208			6.6
	110/115/220/230/277	Medium	940 CFM - 26.6 m³/min	5.5
	208			6.0
	110/115/220/230/277	Low	740 CFM - 21.0 m³/min	4.2
	208			4.6
MERV 13 (Model Digit 10=C)	110/115/220/230/277	High	1080 CFM - 30.6 m³/min	6.6
	208			7.3
	110/115/220/230/277	Medium	940 CFM - 26.6 m³/min	6.1
	208			6.8
	110/115/220/230/277	Low	740 CFM - 21.0 m³/min	4.9
	208			5.3

START-UP PROCEDURE

Chilled Water Unit – Control Circuit Checks

After piping connections are complete and checked for leaks, the next step is to verify the unit controls are functioning correctly. The following steps are to be performed:

1. Isolate the unit from the chilled water supply. A system electrical check can now be carried out.
2. Turn on the unit.
    a. For electromechanical units (Digit 8=E), use the field-installed thermostat to send 24V AC to the G thermostat terminal. Confirm the fan is running.
    b. For microprocessor units (Digit 8=M), use the infrared transmitter or the field-installed touchscreen panel to change the mode to fan-only as indicated by the propeller icon. Confirm the fan is running. Check that the high, medium, and low fan speeds are operating correctly by changing the fan speed via the transmitter or field installed touchscreen panel.
3. Check the operation of the chilled water valve by switching the system to cooling mode forcing a call for cooling.
    a. For electromechanical units (Digit 8=E), the thermostat should be sending 24V AC to the G and Y thermostat terminals which will start the fan and open the water valve.
    b. For microprocessor units (Digit 8=M), use the transmitter or touchscreen to change the mode to cooling-only as indicated by the snowflake icon. Lower the temperature setpoint until the controller starts the fan and powers the cooling relay.
4. For units with heating (Model Digit 9=A or B or C), check the operation of the hot water valve or electric heat element by switching the system to heating mode and forcing a call for heat.
    a. For electromechanical units (Digit 8=E), the thermostat should be sending 24V AC to the G and W thermostat terminals to start the fan and open the hot water valve.
    b. For microprocessor units (Digit 8=M), use the transmitter or touchscreen to change the mode to heating-only as indicated by the hot surface icon. Raise the temperature setpoint until the controller starts the fan and powers the heating relay. The microprocessor controller will keep the fan running for an additional 30 seconds after a heating cycle ends to dissipate heat from the coil.
5. Repeat steps 1-4 above for all units in the same system.

With the unit functions verified, the system can now be balanced following typical balance procedures outside the scope of this manual.

START UP SHEET - EXAMPLE

Figure 16.1 - Start Up Sheet – Page 1 – EXAMPLE

CASSETTE START UP SHEET

Date		Job ID			
Unit tag ID		Unit model #			
Room ID		Unit serial #		Last 4 digits	
Order SPO		Installer			
Diagram #		Sales rep			

Installation Checks	Indoor	Outdoor
Unit mounted level		
Fresh air duct fitted		
Condensate drain line installed correctly		
All electrical and mechanical connections secure		
Pipework and insulation in good condition		
Any visual damage to the unit		

Mains Incoming Supply		**Step Up XFMR** (If Applicable)		
L1 + L2 or (L1 + N)	V			
Controls XFMR - Pri	V	Step Up XFMR - Pri		V
Controls XFMR - Sec	V	Step Up XFMR - Sec		V

Supply Fan Motor					
Amps	High		Med		Low

Condensing Unit			
Make		Hard Start Kit Fitted	
Model Number		Low Ambient Kit Fitted	
Serial Number		Crankcase Heater Fitted	
Primary Voltage			
Secondary Voltage			

Outdoor CD Fan					
Motor Size	HP		FLA		Make
Amps	Hi				

Compressor					
CP model			CP make		
CP RLA	A				
	L1		**L2**		**L3**
CP RLA - Cool stage 1	A		A		A 67% Load
CP RLA - Cool stage 2	A		A		A 100% Load

Refrigeration		
	Cool 100% load	**Cool 67% load**
Suction pressure	psig	psig
Discharge pressure	psig	psig
Superheat	°F	
Sub cool	°F	

Air Temperatures	**DX Cool 100%**	**Hot Water/Steam**	**Chilled Water**	**Electric**
Return air temp (RTN)	°F	°F	°F	°F
Supply air temp (SAT)	°F	°F	°F	°F
Outside air temp (OAT)	°F			

Controller Information			
Make		Model	
Program revision		Program Rev SPO (Special)	
Thermostat type		Time and date set	
BACnet card fitted		Occupancy input type	
MS/TP address (MAC)		CO2 standby control	
Device Instance (DI)		Electromechanically tested	
LON card fitted		Operation of motion sensor in Unocc	
Neuron ID		Occupancy override type	

START UP SHEET - EXAMPLE

Figure 17.1 - Start Up Sheet – EXAMPLE – Page 2

S/N 0

Setpoints	**Cool**		**Heat**		
Occupied Set point		°F		°F	°F
Unoccupied Set point		°F		°F	°F
Standby Set point		°F		°F	

Component Test (If Applicable)

Unit cycled On/Off via controls	*Microprocessor / Modine controls only*	
Fan speeds correct	*Microprocessor / Modine controls only*	
Vans sweep operates correctly	*Medium & Large models only*	
Condensate high limit tested	*High limit trip disables cooling output*	
Condensate pump ejects test water	*12 fl oz. minimum of test water*	
Condensate drain line installed correctly	*Maximum 30" lift*	
Timer functions set on hand set / user interface	*Microprocessor / Modine controls only*	
Supply air knockouts used	*5" or 6" knockouts (Qty 1 -4)*	
Fresh air knockouts used	*3" knockouts (Qty 1 - 3)*	
Filter change switch set and tested		
Hot water freeze stat set and tested	*Auto Rest (Out 35 °F in 55 °F)*	
Hot water freeze stat setting		
DX freeze stat tested	*Auto Rest (Out 28°F in 50°F)*	
Unit electromechanically tested	*When controls are by others*	

Jumper Settings - (Microprocessor Only)

J1	**On** = RV on in cooling	**Off** = RV on in heating	
J2	**On** = Heat pump mode	**Off** = None Heat pump mode	
J3	**On** = Unit is stand alone master	**Off** = Unit is a slave	

Service Technician	
Service Company	
Service Company Phone	

SEQUENCE OF OPERATION

DIGIT 8=E: ELECTRO-MECHANICAL CONTROLS

A 24V signal from the thermostat to terminal G supplies power to the blower motor(s) and condensate pump. The condensate pump will run continuously during cooling operation, as long as there is a call for cooling. A call for heating, at terminal W, or cooling, at terminal Y, will energize the water valve actuator and allow water to flow through the cassette coil. When the call for heating or cooling is satisfied the valve will close.

If the temperature drops below the set-point of the coil freeze stat (Model Digit 11=F), the water valve with automatically open to circulate water through the coil.

If the condensate float switch detects a high level of water in the condensate tray, the switch will open, activate the condensate pump and disable the heating/cooling signal until the water level drops down to normal.

DIGIT 8 = M: MICRO-PROCESSOR CONTROLS

Indoor Fan Operation

The indoor fan will run continuously at the most recently set speed or will alter the speed according to the room temperature conditions when set to Auto. The indoor fan will continue to run until the unit is turned off by the user or via a pre-set time setting. When the unit is turned off during heating, the indoor fan will continue to run for approximately two minutes, this helps to dissipate residual heat from the electric heaters. In Unoccupied mode, the fan will cycle with a call for heating or cooling.

Temperature Control

The microprocessor controller references the factory mounted return air sensor and compares it to the temperature setpoint to determine when cooling or heating is required. By default, the controller will have a single setpoint for cooling and heating during Occupied mode of 73°F (22.8°C). When the controller is set to Auto mode, it will power the cooling relay when the return air temperature is warmer than setpoint and the heating relay when it is cooler than setpoint. A deadband of 4°F (2.2°C) centered around the setpoint is used to prevent short cycling. When the mode is set to Cooling-only, the controller will only cycle temperature control when the return air is warmer than setpoint. When set to Heating-only, it will only cycle temperature control when the return air is cooler than setpoint.

In 2-Pipe units (Digits 9=C), cooling will be locked out if the water temperature supplied to the coil is warmer than 68°F (20°C). Heating will be locked out if the water is cooler than 86°F (30°C).

Occupancy Control

By default, the controller can be toggled On/Off with either the transmitter or the touchscreen panel. The cassette will operate as if the space is Occupied whenever it is On. If it's necessary to set back temperatures, the controller can be switched to Unoccupied mode using the BMS. The BMS or the touchscreen panel can also be used to enable the controllers digital input for an occupancy sensor.

Power Failure

The controller will auto restart in its previous mode of operation after a power failure. When power is restored, the controller will revert to its last operating mode, e.g. if the controller was turned on before power fail, after power is restored, the controller will automatically turn on. Alternatively, if the controller was turned off before power fail, after power is restored, the controller will remain off.

Alarms

- Return Air Sensor Failure
- Condensate High Level
- Indoor Coil Under Temperature (If freeze stat is on unit – Model Digit 11=F)
- Changeover Water Sensor Failure (Model Digit 9=C)

Microprocessor DIP Switch Settings

DIP Switches 3.1 through 3.8 are located on the Microprocessor Controller to offer different control features and their functionality is listed below in Table 18.1. Ensure the DIP switches are set in the correct ON/OFF position.

Table 18.1 - Microprocessor Dipswitch Settings

DIP Switch	Function	DIP Switch Position
SW3.1	0-10V Fan Control	Always ON
SW3.2		Always ON
SW3.3	Heating Option	If Digit 9 = C, OFF. If Digit 9 = A, B, or N, ON.
SW3.4	N/A	Always OFF
SW3.5		Always OFF
SW3.6		Always OFF
SW3.7	Chilled Water Cooling	Always ON
SW3.8	BMS comm. protocol	Modbus=OFF; BACnet=ON

Remote Infrared Transmitter

The infrared transmitter is used to switch the unit on/off, change temperature settings, fan speed, and operating mode. See page 19 and page 20 for more details on the infrared transmitter.

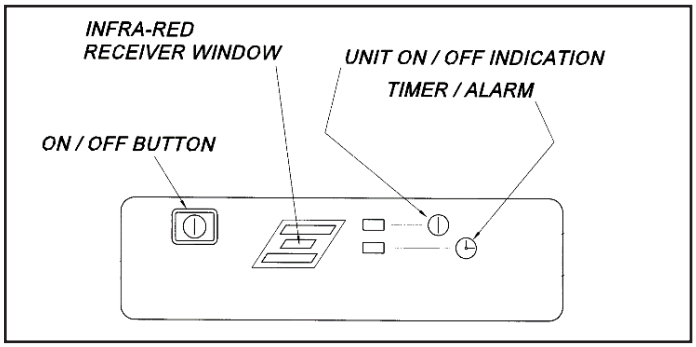
MICRO-PROCESSOR OPERATION

Micro-Processor Controls Operation

Receiver

The IR receiver is an extension of the control board and is located on the fascia of the unit, connected by means of a 7-pin plug and socket.

Figure 19.1 - Unit Mounted Receiver



The microprocessor controller has a built-in diagnostics feature so that in the event of an alarm, the nature of the fault can be determined. The yellow timer/alarm LED flashes on the fascia in a pre-determined frequency depending on the fault. These are identified below in Table 19.1.

Table 19.1 - LED Identification

LED NAME	LED State	System State
"On"	ON	ON
"On"	OFF	OFF
"Timer" & "On"	Blinking synchronous	a. Fault "F1" indication – error with unit mounted return air sensor. b. Fault on DI1,0 input (input was opened more than 10 seconds) - Condensate High Level - Freeze stat alarm

Transmitter

On/Off

Press the ON/SEND button to activate the cassette unit and/or updating information.

Fan Speeds

Press the FAN button to switch between fan speeds:

High Speed
Medium Speed
Low Speed
Auto Speed

Press the ON/SEND button to send information to the cassette unit.

Modes

Press the MODE button to switch between:

Cool
Heat
Auto Change-over
Fan Only

Press the ON/SEND button to send information to the cassette unit.

Figure 19.2 - Remote Transmitter

MICRO-PROCESSOR OPERATION

Transmitter (continued)

Temperature Set-Point

Adjust the desired temperature using the (+) or (-) buttons.

Press the ON/SEND button to send information to the cassette unit.

Batteries Replacement

When the batteries are low, the display of the remote control will dim. If the batteries will not be replaced the display will turn off completely.

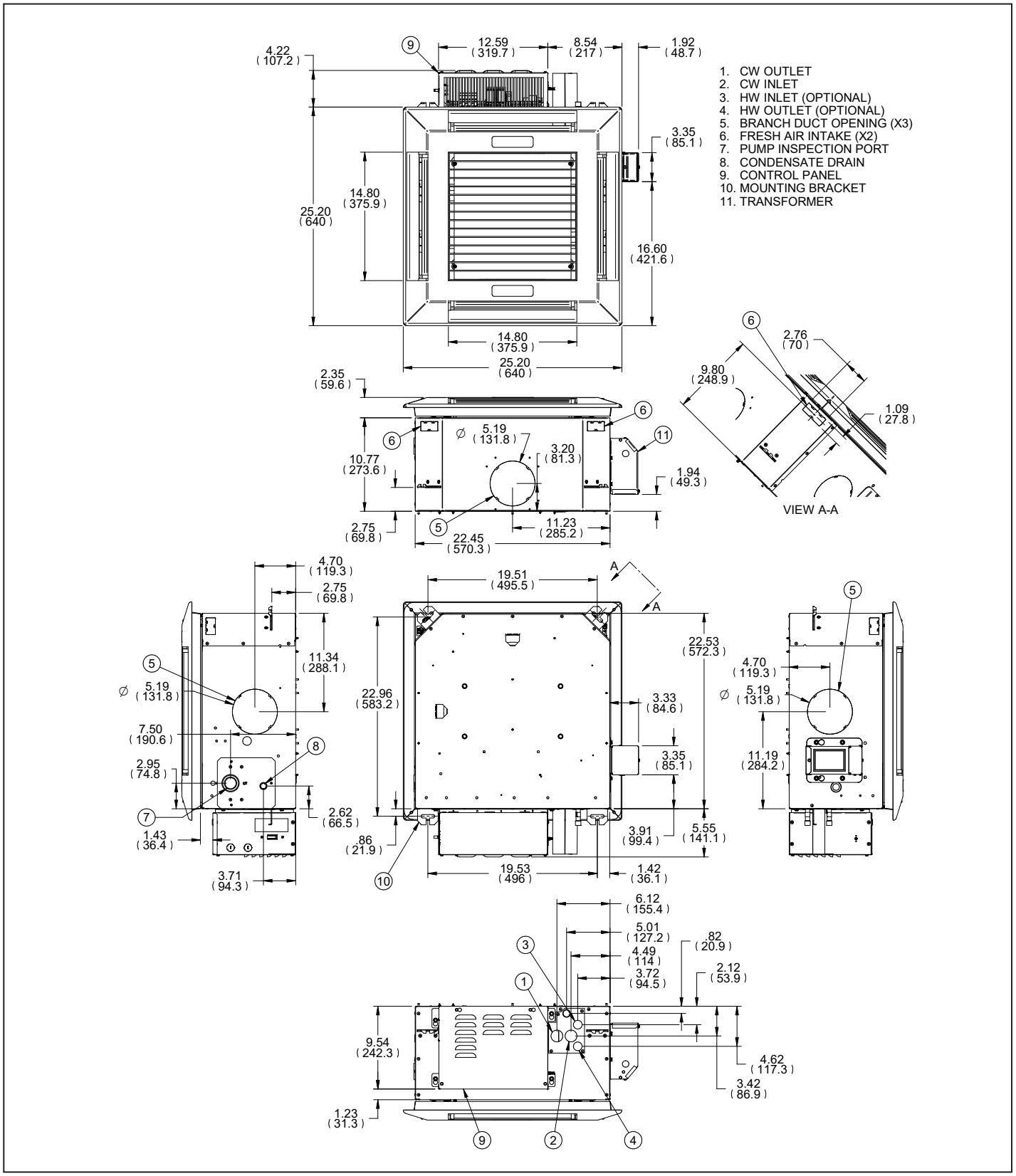
1. Pull the batteries cover down to reveal the batteries.
2. Remove the old batteries.
3. Wait for 10 minutes before installing the new batteries.
4. Install two new AAA batteries - Pay attention to the polarity.
5. Return the batteries cover to it's place.

IMPORTANT: The remote control will not operate unless at least 10 minutes pass between removing the old batteries and installing the new ones.

DIMENSIONS

Small Chassis: Chilled Water Units

Figure 21.1 - Dimensions – Small Chassis: Chilled Water Units – Size 08 and 12

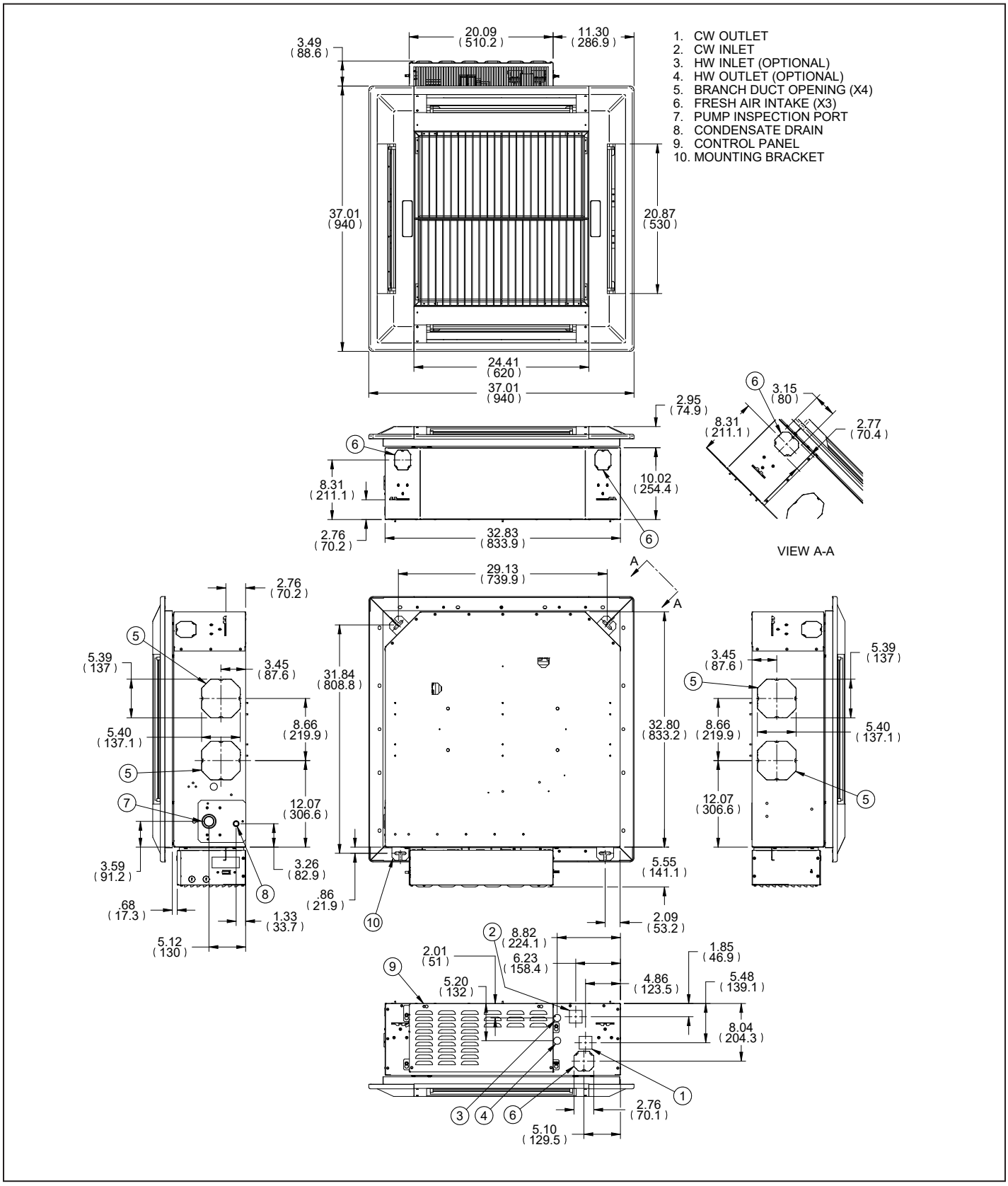


1. Dimensions shown are inches (mm)

DIMENSIONS

Medium Chassis: Chilled Water Units

Figure 22.1 - Dimensions – Medium Chassis: Chilled Water Units – Size 18

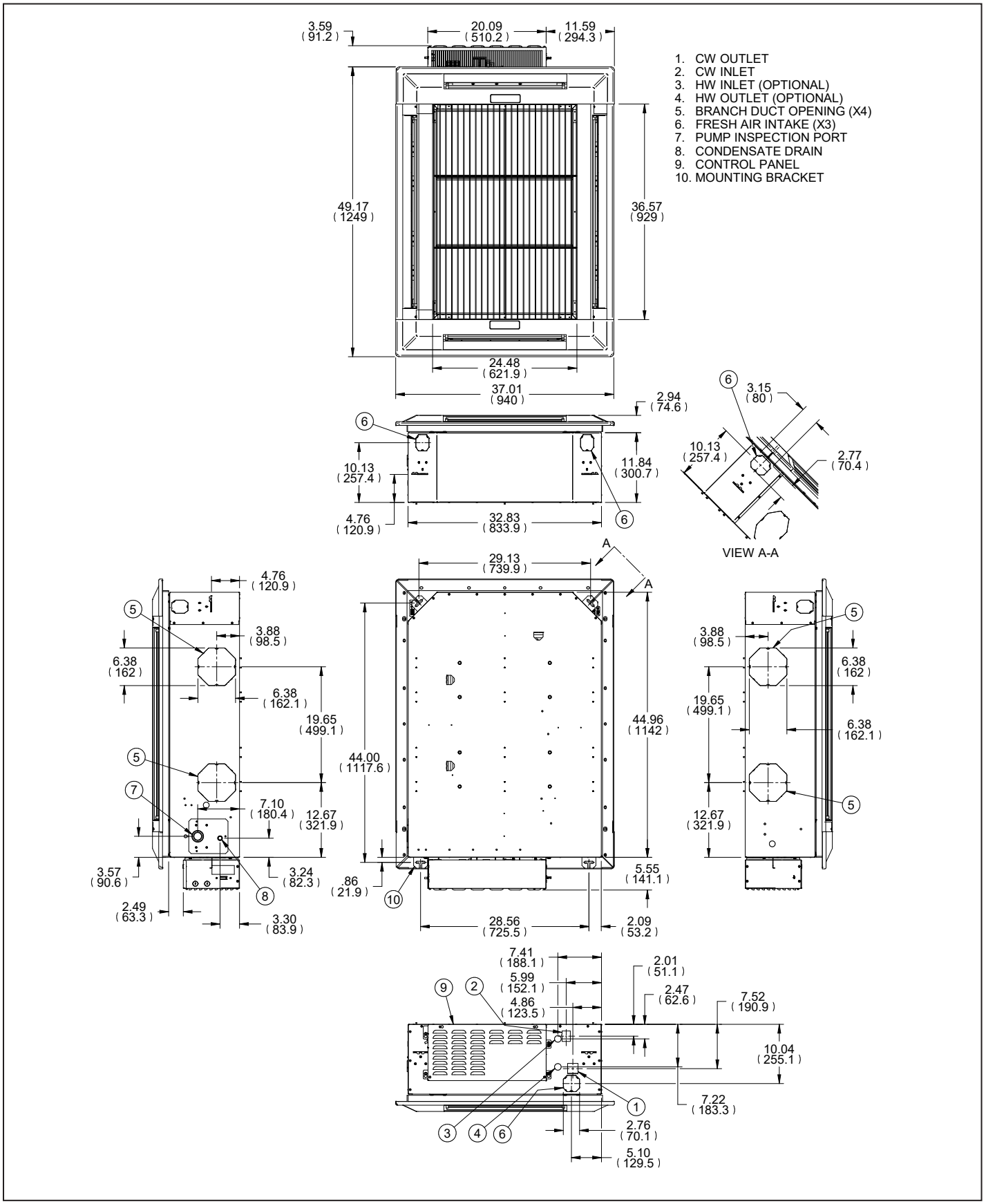


1. Dimensions shown are inches (mm)

DIMENSIONS

Large Chassis: Chilled Water Units

Figure 23.1 - Dimensions – Large Chassis: Chilled Water Units – Size 36



1. Dimensions shown are inches (mm)

TECHNICAL DATA

Chilled Water Units - IP Units

Table 24.1 - Technical Data – Chilled Water Units - IP Units

			Model Digit 2,3 + Model Size			
DESCRIPTION		**UNITS**	**CW08**	**CW12**	**CW18**	**CW36**
COOLING CAPACITY	At Nominal High Speed Airflow (1)	BTU/hr	7,800	11,200	18,600	34,300
CONSTRUCTION	Material: Fascia		High Impact Polystyrene (Light Grey color), UL 94 VO Fire Rating			
	Material: Chassis		Galvanized Steel			
CHILLED WATER COIL	Type		Finned Tube			
	Quantity		1			
	Face Area	ft²	1.8		2.8	5.2
	Nominal Airflow - H/M/L (2)	CFM	330/300/260	360/330/300	620/540/460	1080/940/740
	Discharge		4-Way			
	Unit Water Volume	gal	0.29		0.45	0.79
	Maximum Inlet Water Pressure	psi	125			
FAN	Type		Backward Curved w/ EC Motor			
	Quantity		1			2
	Diameter	in	11		14	
	Horsepower (per fan)	HP	1/10		1/5	
WEIGHT	Weight - Chassis w/ Fascia	lb	57	60	93	119
CONNECTIONS	Chilled Water Inlet (OD)	in	0.625		0.875	
	Chilled Water Outlet (OD)		0.625		0.875	
	HW Coil Connection (OD)		0.625	N/A	0.625	0.750
	Condensate (ID)		0.375			
FILTRATION	Type		Washable Polyester Foam (Standard)			
	Size	in	14.5 x 13.5 x 0.2		11.6 x 23.2 x 0.2	
	Type		MERV 10 or MERV 13			
	Size	in	13.0 x 13.0 x 1.0		12.0 x 25.0 x 1.0	
	Quantity		1		2	3
CONDENSATE PUMP	Maximum Head	in	30			
	Nominal Flow-rate	gpm	0.1			
OPTIONS	Electric Heating Capacity	kW	N/A		N/A	N/A
	HW Heating Capacity (3)	BTU/hr	17,100	N/A	28,000	45,200
	Max Supply Air Branch Duct Connections	qty	2			
	Supply Air Branch Duct Diameter	in	5			6
	Ducted Supply Air Volume (4)	CFM	80		125	220
	Fresh Air Connections	qty	2		3	
	Fresh Air Duct Diameter	in	3			
	Fresh Air Volume (5)	CFM	40		65	95

(1) Nominal cooling capacity based on 80/67°F DB/WB, water temperature of 45°F inlet / 55°F outlet, 208V/1Ph/60Hz supply voltage at high speed.

(2) Nominal airflow based on 208V/1Ph/60Hz supply voltage.

(3) Nominal heating capacity based on 70/60°F DB/WB, water temperature of 180°F inlet / 160°F outlet, 208V/1Ph/60Hz supply voltage at high speed.

(4) Maximum air volume available through one branch duct 6ft long, with Cassette fan(s) at high speed and corresponding fascia aperature closed.

(5) Maximum fresh air through all knockouts connected to one 10ft long duct with fan at high speed. Fresh air volume will depend on duct configuration, fan speed, and filter type.

(6) For conditions different to those shown, refer to Breeze Accuspec. For electrical data, refer to the submittal data in Breeze Accuspec.

TECHNICAL DATA

Chilled Water Units - SI Units

Table 25.1 - Technical Data - Chilled Water Units - SI Units

			Model Digit 2,3 + Model Size			
DESCRIPTION		**UNITS**	**CW08**	**CW12**	**CW18**	**CW36**
COOLING CAPACITY	At Nominal High Speed Airflow (1)	kW	2.3	3.3	5.5	10.1
CONSTRUCTION	Material: Fascia		High Impact Polystyrene (Light Grey color), UL 94 VO Fire Rating			
	Material: Chassis		Galvanized Steel			
CHILLED WATER COIL	Type		Finned Tube			
	Quantity		1			
	Face Area	m^2	0.17		0.26	0.48
	Nominal Airflow - H/M/L (2)	m^3/min	9.3 / 8.5 / 7.4	10.2 / 9.3 / 8.5	17.6 / 15.3 / 13.0	30.6 / 26.6 / 21.0
	Discharge		4-Way			
	Unit Water Volume	L	1.1		1.7	3
	Maximum Inlet Water Pressure	Pa	861,845			
FAN	Type		Backward Curved w/ EC Motor			
	Quantity		1			2
	Diameter	cm	28.0		35.5	
	Horsepower (per fan)	W	74.6		149.1	
WEIGHTS	Weight - Chassis	kg	25.9	27.2	42.2	54.0
CONNECTIONS	Chilled Water Inlet (OD)	cm	1.6		2.2	
	Chilled Water Outlet (OD)		1.6		2.2	
	HW Coil Connection (OD)		1.6	N/A	1.6	1.9
	Condensate (ID)		0.95			
FILTRATION	Type		Washable Polyester Foam (Standard)			
	Size	cm	36.8 x 34.2 x 0.5		29.5 x 58.9 x 0.5	
	Type		MERV 10 or MERV 13			
	Size	cm	33.0 x 33.0 x 2.5		30.5 x 63.5 x 2.5	
	Quantity		1		2	3
CONDENSATE PUMP	Maximum Head	cm	76.2			
	Nominal Flow-rate	l/m	0.38			
OPTIONS	Electric Heating Capacity	kW	N/A		N/A	N/A
	HW Heating Capacity (3)	kW	5.0	N/A	8.2	13.2
	Max Supply Air Branch Duct Connections	qty	2			
	Supply Air Branch Duct Diameter	cm	12.7			15.2
	Ducted Supply Air Volume (4)	m^3/min	2.3		3.5	6.2
	Fresh Air Connections	qty	2		3	
	Fresh Air Duct Diameter	cm	7.6			
	Fresh Air Volume (5)	m^3/min	1.1		1.8	2.7

(1) Nominal cooling capacity based on 80/67°F DB/WB, water temperature of 45°F inlet / 55°F outlet, 208V/1Ph/60Hz supply voltage.

(2) Nominal airflow based on 208V/1Ph/60Hz supply voltage.

(3) Nominal heating capacity based on 70/60°F DB/WB, water temperature of 180°F inlet / 160°F outlet, 208V/1Ph/60Hz supply voltage.

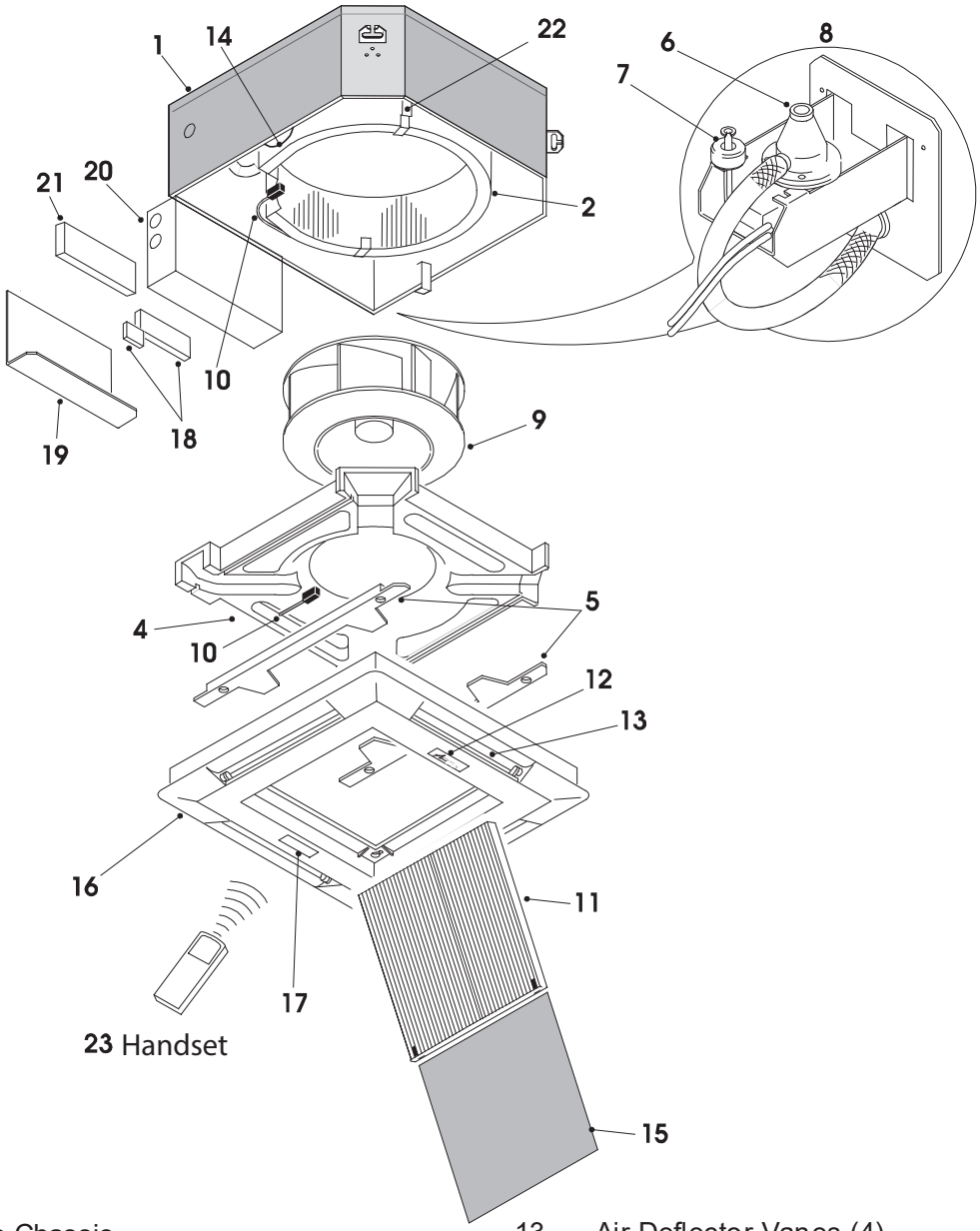
(4) Maximum air volume available through one branch duct 6ft long, with Cassette fan(s) at high speed and corresponding fascia aperature closed.

(5) Maximum fresh air through all knockouts connected to one 10ft long duct with fan at high speed. Fresh air volume will depend on duct configuration, fan speed, and filter type.

(6) For conditions different to those shown, refer to Breeze Accuspec. For electrical data, refer to the submittal data in Breeze Accuspec.

EXPLODED UNIT DRAWING & PARTS LIST – CHILLED WATER

Figure 26.1 - Exploded Unit Drawing & Parts List – Chilled Water – Sizes 08 and 12 shown



1. Cassette Chassis
2. Chilled Water Coil
3. *Not Used*
4. Condensate Tray
5. Condensate Tray Supports (2)
6. Condensate Pump
7. High Level Switch
8. Condensate Pump Assembly (Shown Inverted)
9. Fan/Motor Assembly
10. Coil/Return Air Sensors (Microprocessor Only – Digit 8=M)
11. Grille
12. Brand Label
13. Air Deflector Vanes (4)
14. Freeze Protection Thermostat
15. Filter
16. Fascia Assembly
17. Infrared Receiver (Microprocessor Only–Digit 8 = M)
18. Terminal Rail, Relays & Timer
19. Control Box Lid
20. Control Box
21. Microprocessor Controller (Microprocessor Only–Digit 8 = M)
22. Coil Support Brackets
23. Remote Handset (Microprocessor Only – Digit 8 = M)

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MAINTENANCE

MAINTENANCE – INDOOR UNIT

⚠ WARNING

1. Disconnect power supply before making wiring connections or working on this equipment. Follow all applicable safety procedures to prevent accidental power up. Failure to do so can result in injury or death from electrical shock or moving parts and may cause equipment damage.
2. When servicing or repairing this equipment, use only factory-approved service replacement parts. Refer to the rating plate on the appliance for complete appliance model number, serial number, and company address. Any substitution of parts or controls not approved by the factory will be at the owner's risk.

⚠ AVERTISSEMENT

1. Débranchez l'alimentation électrique avant d'effectuer des connexions ou de travailler sur l'appareil. Respectez toutes les procédures de sécurité qui s'appliquent pour éviter toute mise en marche accidentelle. Le non-respect de cette directive peut entraîner des blessures ou la mort causées par un choc électrique ou des pièces mobiles, en plus d'endommager l'appareil.
2. Pour l'entretien et les réparations de cet appareil, utilisez uniquement des pièces d'origine certifiées. Pour la liste complete des pièces de rechange, consultez Modine Manufacturing Company. Le numéro de modèle complet, le numéro de série et l'adresse du fabricant figurent sur la plaque signalétique fixée à l'appareil. Toute substitution de pièce ou decommande non approuvée par le fabricant sera aux risques du propriétaire.

⚠ CAUTION

1. Do not attempt to reuse any mechanical or electrical controllers which have been wet. Replace defective controller.
2. When servicing the unit, some components may be hot enough to cause pain or injury. Allow time for cooling of hot components before servicing.

⚠ ATTENTION

1. Ne tentez pas de réutiliser un composant mécanique ou électrique qui a été mouillé. Ces composants doivent être remplacés.
2. Durant l'entretien de l'unité, certains composants peuvent être assez chauds pour causer de la douleur ou une blessure. Laissez les composants chauds se refroidir avant de procéder à tout entretien.

IMPORTANT

1. Start up and adjustment procedures, installation, and service of these appliances must be performed by a qualified installation and service agency.
2. To check most of the Possible Remedies in the Troubleshooting guide listed in Table 33.1, refer to the applicable sections of the manual.

IMPORTANT

1. Les procédures de démarrage et de réglage, l'installation et le service de ces appareils doivent être confiés à un centre d'installation et de service qualifié.
2. Pour essayer la plupart des solutions possibles suggérées dans le guide de dépannage du Table 33.1, reportez-vous aux sections correspondantes du manuel.

Maintenance Schedule

Every THREE (3) MONTHS

1. Check the air filter condition. Clean if necessary (see Filter Removal and Cleaning, below).

Every SIX (6) MONTHS

1. Same as three (3) months, PLUS
2. Clean condensate tray with biocide suitable for polystyrene.
3. Clean fascia.

Every TWELVE (12) MONTHS

1. Same as six (6) months, PLUS
2. Check all electrical connections for security.
3. Check condensate pump operation.
4. Check the heating and cooling action, to ensure proper operation.

Filter Removal and Cleaning

1. Disconnect power.
2. Unclip the catches along the edge of each grille and allow them to hang from the fascia by the molded plastic hinges located along the opposite edge.
3. If desired, the grilles can be removed from the fascia completely.
4. The filter can now be easily slid out of the small plastic retaining clips on the back of each grille.
5. Gently vacuum clean the filters on a medium vacuum power.
6. When cleaned, the filters can be replaced by reversing steps 2 to 4.

Recommended Spares

One complete set of air filters.

MAINTENANCE

Disassembly Procedure

Disconnect power supply before disassembly to prevent electrical shock and injury from moving parts.

Fan Removal

1. Remove the electrical panel lid and disconnect the fan connections from within the electrical panel.
2. Unclip the grille catches and remove the grille(s) from the fascia.
3. Remove the fascia by loosening the (4) fascia mounting bolts and then slide the fascia horizontally until it releases from the chassis. Drain the condensate tray by removing the small black rubber drain plug, catching the condensate (if any) in a suitable container. Remove the self-tapping screws securing the (2) insulated metal condensate tray support channels and pull away from the condensate tray. Pull the condensate tray downwards and away from the chassis.
4. Remove M6 nuts from the mounting plate bracket while supporting the fan to prevent it from falling. The fan assembly can now be dropped down from the unit.
5. Once the fan assembly is removed from case, unfasten the (4) screws from the motor to the mounting bracket.

Condensate Tray Removal

1. Unclip the grille catches and remove the grille(s) from the fascia.
2. Remove the fascia by loosening the fascia mounting bolts and then slide the fascia horizontally until it releases from the chassis. If the unit is microprocessor controlled (Digit 8=M), disconnect the infrared receiver by pulling apart the provided plug connectors before removing the fascia.
3. Drain the condensate tray by removing the small black rubber drain plug, catching any condensate in a suitable container.
4. Remove the self-tapping screws securing the two insulated metal condensate tray support channels and pull the channels away from the condensate tray. Pull the condensate tray, complete with inlet ring (inlet ring on model size 18 and 36 only) downwards away from the chassis. Be careful, as pan may still contain condensate.

Condensate Pump Removal

1. Disconnect the condensate pump and float switch wires from inside the electrical panel.
2. Unscrew the three M4 screws holding the pump inspection plate in place and pull the pump and mounting bracket away from the chassis while feeding the pump wires between condensate tray and insulation.

MAINTENANCE

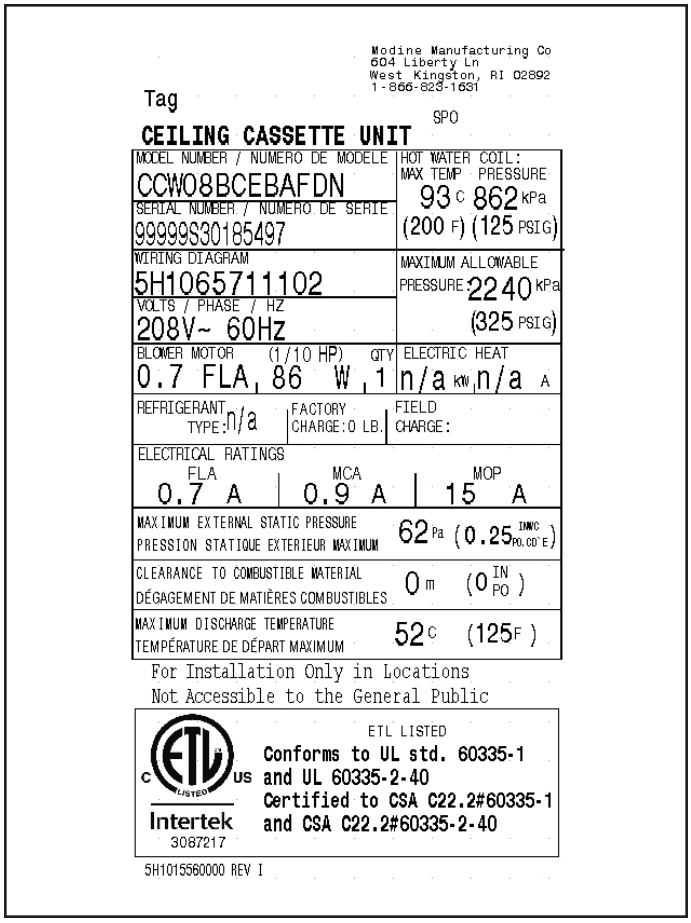
Replacement Parts

For ease of identification when ordering replacement parts or contacting the factory about your unit, please quote the unit type and unit serial number. This information can be found on the serial plate attached to your unit (see Figure 30.1).

When a component part fails, a replacement part should be obtained through the Parts Department. If the part is considered to be under warranty, the following details are required to process this requirement:

1. Full description of part required, including Unit's part number, if known.
2. The original equipment serial number.
3. An appropriate purchase order number.

Figure 30.1 - Serial Plate Example



MODEL IDENTIFICATION

Table 31.1 - Model Number Designations

1	2,3	4,5	6	7	8	9	10	11	12	13
PT	UC	MBH	SV	G	C	HO	FL	FP	PO	CC

1 - Product Type (PT)

S or C - Cassette

2,3 - Unit Configuration (UC)

CW – Building Water

4,5 - Nominal Capacity (MBH)

08 – 8,000 Btu/Hr

12 – 12,000 Btu/Hr

18 – 18,000 Btu/Hr

36 – 36,000 Btu/Hr

6 – Supply Voltage (SV)

A – 115/60/1

B – 208/60/1

C – 230/60/1

H – 277/60/1

J – 110/50/1

K – 220/50/1

7 – Generation (G)

A – First Gen - PSC Motor

B – Second Gen - Single Speed PSC Motor

C – Third Gen - EC Motor

8 – Control Code (C)

E – Electro-Mechanical Controls

M - Microprocessor Controls (Infrared Remote Control)

9 – Heating Option (HO)

N – None

A – Electric Heat

B – Hot Water Heating Coil – 4-pipe

C - Hot Water Heating – 2 Pipe (Uses CW Coil)

10 – Filters (FL)

A – 60-80% Arrestance (Standard)

B – MERV 10

C – MERV 13

11 – Heat Freeze Protection (FP)

N – None

F – Hot Water Coil Freeze Protection

12 – Power Option (PO)

N – None

D – Cassette Power Disconnect Switch

13 – Internal Use

N – Not Currently Used

TROUBLESHOOTING

⚠ WARNING

1. Disconnect power supply before making wiring connections or working on this equipment. Follow all applicable safety procedures to prevent accidental power up. Failure to do so can result in injury or death from electrical shock or moving parts and may cause equipment damage.
2. When servicing or repairing this equipment, use only factory-approved service replacement parts. A complete replacement parts list may be obtained by contacting the factory. Refer to the rating plate on the appliance for complete appliance model number, serial number, and company address. Any substitution of parts or controls not approved by the factory will be at the owner's risk.

⚠ AVERTISSEMENT

1. Débranchez l'alimentation électrique avant d'effectuer des connexions ou de travailler sur l'appareil. Respectez toutes les procédures de sécurité qui s'appliquent pour éviter toute mise en marche accidentelle. Le non-respect de cette directive peut entraîner des blessures ou la mort causées par un choc électrique ou des pièces mobiles, en plus d'endommager l'appareil.
2. Pour l'entretien et les réparations de cet appareil, utilisez uniquement des pièces d'origine certifiées. Pour la liste complete des pièces de rechange, consultez Modine Manufacturing Company. Le numéro de modèle complet, le numéro de série et l'adresse du fabricant figurent sur la plaque signalétique fixée à l'appareil. Toute substitution de pièce ou decommande non approuvée par le fabricant sera aux risques du propriétaire.

⚠ CAUTION

1. Do not attempt to reuse any mechanical or electrical component which has been wet. Such component must be replaced.
2. When servicing the unit, some components may be hot enough to cause pain or injury. Allow time for cooling of hot components before servicing.

⚠ ATTENTION

1. Ne tentez pas de réutiliser un composant mécanique ou électrique qui a été mouillé. Ces composants doivent être remplacés.
2. Durant l'entretien de l'unité, certains composants peuvent être assez chauds pour causer de la douleur ou une blessure. Laissez les composants chauds se refroidir avant de procéder à tout entretien.

IMPORTANT

1. Start up and adjustment procedures, installation, and service of these appliances must be performed by a qualified installation and service agency.
2. No water-flow can cause a freeze condition resulting in damage to the coil.
3. Never leave the unit filled with water in a building without heat unless antifreeze has been added.
4. To check most of the Possible Remedies in the Troubleshooting guide listed in Table 33.1, refer to the applicable sections of the manual.

IMPORTANT

1. Les procédures de démarrage et de réglage, l'installation et le service de ces appareils doivent être confiés à un centre d'installation et de service qualifié.
2. L'absence d'écoulement d'eau risque de causer une condition de gel et d'endommager le serpentin.
3. Ne laissez jamais l'appareil rempli d'eau dans un immeuble non chauffé sans lui ajouter de l'antigel.
4. Pour essayer la plupart des solutions possibles suggérées dans le guide de dépannage du Table 33.1, reportez-vous aux sections correspondantes du manuel.

TROUBLESHOOTING

Table 33.1 - Troubleshooting – Indoor Unit

Trouble	Possible Cause	Possible Remedy
A. Two LED Flashing (Microprocessor units only Digit 8 = M)	1. Faulty float switch. (Connected to micro terminals 'DI1')	1. See section "F. Condensate High Level (microprocessor units: LED's will flash)".
	2. Fan thermal trip. (Connected to micro terminals 'DI1')	2. See section "C. Fans Will Not Run".
	3. Freeze stat alarm. (Connected to micro terminals 'DI1')	3. See section "G. Coil Freeze".
	4. Return air sensor failure. (Connected to micro terminals 'T1')	4. Use the unit wiring schematic to isolate the return air sensor and measure the resistance. Sensor is 50K@72°F type. Check and replace if necessary.
B. Unit Will Not Operate	1. No power mains power.	1. Check power supply to the unit. For microprocessor units (Digit 8 =M), check power to the microprocessor and check the on-board micro fuse.
	2. No 24V control circuit power.	2. Check the 24V feed from the control transformer. If not present, check transformer windings – replace if necessary.
	3. Control circuit disabled by unit protection device.	3. In some models, particularly electro-mechanical units (Digit 8 = E), some protection devices (such as freeze-stats, fan trips, etc) are wired in line with the 24V control circuit feed to cause the unit to shut down in an alarm condition. Use the unit's wiring schematic to identify these devices and investigate accordingly.
	4. Infrared receiver failure. (Microprocessor units only - Digit 8 = M)	4. If the green LED is lit or flashing, receiver is OK. If there are no LEDs lit and the unit will not respond to the transmitter, press the On/Off button on the fascia display panel. If the unit responds to the On/Off button receiver is OK. Check transmitter.
	5. Transmitter failure. (Microprocessor units only - Digit 8 = M)	5. Try new batteries first. If no response press On/Off button on unit fascia. If the unit responds to the On/Off button transmitter is faulty.
	6. Microprocessor failure. (Microprocessor units only - Digit 8 = M)	6. The microprocessor is the least likely component to be at fault. Investigate all other possibilities in every section of this troubleshooting guide first. Replace the micro only after all other avenues of investigation are exhausted.
C. Fans Will Not Run	1. Loose wire.	1. Check all fan wire connections. Use unit's electrical schematic to verify that fan is wired correctly.
	2. Faulty fan capacitor.	2. Check fan capacitors, replace if necessary.
	3. Faulty fan motor.	3. Check fan motor protector for open circuit, replace if necessary.
	4. Fan thermal trip	4. Motor temperature limits exceeded, temp cutout is 150ºC± 5ºC. Check fan motor protector for open circuit, replace if necessary.
	5. Faulty PC Board.	5. On electro-mechanical units check for a signal at "G" terminal. On microprocessor units check for steady green light on display panel.
D. No Cooling	1. Incorrect MODE setting. (Microprocessor units only - Digit 8 = M)	1. Check that the transmitter MODE is set to Cooling or Auto Mode.
	2. Set point too high.	2. Check the set point on the transmitter or wall mounted thermostat and adjust if necessary.
	3. Dirty or blocked air filter.	3. See section "G. Coil Freeze".
	4. High condensate level trip.	4. Drain the condensate tray and investigate. See section "F. Condensate High Level (microprocessor units: LED's will flash)".
	5. Sensor failure. (Microprocessor units only - Digit 8 = M)	5. If any of the sensors are faulty the microprocessor will disable the cooling operation.
	6. No chilled water / pumps fail.	6. Check chilled water source and supply to unit.
	7. Faulty valve actuator. (Chilled water units only – Digit 2,3=CW)	7. Check cooling signal present at actuator. Check actuator by manually opening the valve. Replace actuator if necessary.

TROUBLESHOOTING

Troubleshooting – Indoor Unit (cont.)

Trouble	Possible Cause	Possible Remedy
E. Water Leaking From Unit (see also“Condensate High Level”)	1. Condensate plug loose or missing.	1. Check that the rubber condensate plug is securely fitted to the underside of the unit’s polystyrene drip tray. On some models this is located underneath the fascia support rails on the pump side of the unit.
	2. Unit installed unevenly.	2. With fascia removed, ensure that the unit chassis is level (at the face) both front to back and left to right, to ensure correct condensate flow.
	3. Condensate drain piping installed incorrectly.	3. Check that the site installed condensate gravity drain slopes ‘downhill’ away from the unit. (See page 7 of this manual for condensate piping installation guide)
	4. Blocked/kinked condensate pipe.	4. Check condensate piping for blocks/kinks, clear as necessary. Check for a water tight connection between the condensate outlet and the site installed condensate gravity drain.
	5. Condensate pump blocked or failed.	5. Clear any blockages and ensure that power is being applied to the pump. If the pump still does not run, replace the pump.
	6. Float switch failure.	6. Check that the float switch operates correctly and is properly positioned. Float switch is normally closed, opens on rise of water level.
F. Condensate High Level (microprocessor units: LED’s will flash)	1. Maximum pump lift exceeded.	1. Check that the condensate pump head is no greater than 30”. (See page 7 of this manual for condensate piping installation guide)
	2. Blocked/kinked condensate pipe.	2. See section "E. Water Leaking From Unit (see also“Condensate High Level”)"
	3. Condensate pump blocked or failed.	3. See section "E. Water Leaking From Unit (see also“Condensate High Level”)"
	4. Coil freeze up.	4. A coil freeze condition may have caused excessive condensate to collect in the drip tray. See section "G. Coil Freeze".
G. Coil Freeze	1. Cooling coil freeze protection thermostat tripped. (Auto-reset when freeze cleared)	1. Freeze stat is normally closed, opens during freeze. Where fitted, the stat will disable the cooling action (sometimes the entire system) during coil freeze conditions. Use the unit’s wiring schematic to investigate.
	2. Dirty or blocked air filter.	2. Clean / replace filters as necessary. (See page 28 for filter removal and cleaning instructions)

TROUBLESHOOTING

Troubleshooting – Indoor Unit (cont.)

Trouble	Possible Cause	Possible Remedy
H. No Heating (Hot Water)	1. Incorrect MODE setting. (Microprocessor units only - Digit 8 = M)	1. Check that the transmitter MODE is set to Heat or Auto Mode.
	2. Set point too low.	2. Check the set point on the transmitter or wall mounted thermostat and adjust if necessary.
	3. Blocked or dirty filters causing low airflow.	3. Check filters condition. (See page 28 for filter removal and cleaning instructions)
	4. No hot water / pumps failed.	4. Check hot water source and supply to unit.
	5. Faulty valve / actuator.	5. Check actuator by manually opening and closing valve, replace if faulty.
	6. Faulty heater relay.	6. Check signals to relay and check action of relay contacts. Replace relay or PCB if necessary.
I. No Heating (Electric Heat)	1. Incorrect MODE setting. (Microprocessor units only - Digit 8 = M)	1. Check that the transmitter MODE is set to Heat or Auto Mode.
	2. Set point too low.	2. Check the set point on the transmitter or wall mounted thermostat and adjust if necessary.
	3. Overheat cut out tripped. (See also section “Electric Overheat”).	3. Investigate cause of overheat condition. 4. Possible low airflow, check filter condition. (See page 28 for filter removal and cleaning instructions) 5. Possible fan failure. Check fans.(See section "C. Fans Will Not Run") 6. Reset manual overheat cut-out by cycling the main power to the unit. Consult Factory for instructions if necessary.
	4. Heater element failed.	7. Investigate and replace if necessary.
	5. Faulty heater relay.	8. Check signals to relay and check action of relay contacts. Replace relay or PCB if necessary.
J. Electric Overheat	The electric heat circuit contains one automatic reset and one manual reset overheat cut-out protection switch for each electric heat element fitted to the unit. The cut-outs are wired in line with the main power flowing in each element and operate as described below. If the electric heat continues to overheat and trip, increase the fan speed to the specified low speed or higher as listed in Table 24.1 or Table 25.1	
	1. Auto Cut-out – if the auto cut-out trips, the electric heat is temporarily disabled until the unit temperature falls and causes the overheat cut-out to automatically reset.	
	2. Manual Cut-out – if the manual cut-out trips, the electric heat is disabled until the unit temperature falls and the overheat cut-out is manually reset. It will typically take five minutes for the unit temperature to fall sufficiently to allow the cut-out to be reset. The cut-out should only be reset by a qualified and competent electrician by cycling the main power to the unit. Ensure the elements have cooled sufficiently.	

As Modine Manufacturing Company has a continuous product improvement program, it reserves the right to change design and specifications without notice.

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