

AIR HANDLER AND CASED COIL CONVERSION and R-454B LEAK SENSOR INSTALLTION MANUAL



Disclaimer

Proper installation and servicing of the Total Green Mfg. Heat Pump is essential to its reliable performance. All Total Green Mfg. systems must be installed and serviced by a qualified HVAC contractor. Equipment sizing, selection and installation are the sole responsibility of the installing contractor.

Installations of equipment on an existing copper earth loop design that does not match a current Total Green Mfg. earth loop design is not permitted, will void all warranties on the equipment, and is the sole responsibility of the installing contractor. Installation must be made in accordance with the instructions set forth in this manual. Failure to provide installation by a qualified HVAC contractor in a manner consistent with this manual will void and nullify the limited warranty coverage for the system.

Total Green Mfg. shall not be liable for any defect, unsatisfactory performance, damage or loss, whether direct or consequential, relative to the design, manufacture, construction, application or installation of any field specified components. All commissioning and registration paperwork must be filled out at start up and returned to Total Green Mfg. for full warranty coverage.

This appliance is not intended for use 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.

WARNING

LIVE ELECTRICAL COMPONENTS!

Failure to follow this Warning could result in property damage, severe personal injury, or death. Follow all electrical safety precautions when exposed to live electrical components. It may be necessary to work with live electrical components during installation, testing, servicing, and troubleshooting of this product.

The high voltage power supply must agree with the equipment nameplate.

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental effects.

Power wiring must comply with national, state, and local codes.

Follow instructions on unit wiring diagram located on the bottom side of the unit lid.



This equipment is designed for use with R-454B refrigerant that has an A2L classification. Only personnel trained in the proper handling of A2L refrigerants using compatible A2L service and installation tools should carry out services and installation of this equipment. This equipment ships without refrigerant with a dry nitrogen holding charge. Installation and service personnel are solely responsible for the proper servicing and charging of this equipment as set forth in this, and all Total Green Mfg. service and installation manuals.



THIS UNIT REQUIRES SERVICE EQUIPMENT COMPATIBLE WITH R-454B REFRIGERANT



**Refrigerant
Safety Group
A2L**

⚠ WARNING

RISK OF FIRE. FLAMMABLE REFRIGERANT USED. TO BE REPAIRED ONLY BY TRAINED SERVICE PERSONNEL. DO NOT PUNCTURE REFRIGERANT TUBING.

⚠ AVERTISSEMENT

RISQUE D'INCENDIE. RÉFRIGÉRANT UTILISÉ INFLAMMABLE. SEUL UN PERSONNEL D'ENTRETIEN FORMÉ PEUT RÉPARER CE PRODUIT. NE PAS PERFORER LE TUBE RÉFRIGÉRANT.

⚠ WARNING

RISK OF FIRE. DISPOSE OF PROPERLY IN ACCORDANCE WITH FEDERAL OR LOCAL REGULATIONS. FLAMMABLE REFRIGERANT USED.

⚠ AVERTISSEMENT

RISQUE D'INCENDIE. ELIMINER CORRECTMENT ET CONFORMÉMENT AUX RÉGLEMENTATIONS FÉDÉRALES OU LOCALES. RÉFRIGÉRANT UTILISÉ INFLAMMABLE.

⚠ WARNING

RISK OF FIRE. AUXILIARY DEVICES WHICH MAY BE IGNITION SOURCES SHALL NOT BE INSTALLED IN THE DUCTWORK, OTHER THAN AUXILIARY DEVICES LISTED FOR USE WITH THE SPECIFIC APPLIANCE. SEE INSTRUCTIONS.

⚠ AVERTISSEMENT

RISQUE D'INCENDIE. LES DISPOSITIFS AUXILIAIRES QUI PEUVENT ÊTRE DES SOURCES D'INFLAMMATION NE DOIVENT PAS ÊTRE INSTALLÉS DANS LE RÉSEAU DE CONDUITS, À L'EXCEPTION DES DISPOSITIFS AUXILIAIRES ÉNUMÉRÉS POUR UNE UTILISATION AVEC L'APPAREIL SPÉCIFIQUE. VOIR LES INSTRUCTIONS.

⚠ NOTICE

LEAK DETECTION SYSTEM INSTALLED. UNIT MUST BE POWERED EXCEPT FOR SERVICE.

⚠ AVIS

SYSTÈME DE DÉTECTION DE FUITE INSTALLÉ. L'APPAREIL DOIT ÊTRE ALIMENTÉ, SAUF POUR LA MAINTENANCE.

⚠ WARNING

RISK OF FIRE. AUXILIARY DEVICES WHICH MAY BE IGNITION SOURCES SHALL NOT BE INSTALLED IN THE DUCTWORK, OTHER THAN AUXILIARY DEVICES LISTED FOR USE WITH THE SPECIFIC APPLIANCE. SEE INSTRUCTIONS.

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ALL phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES.

IMPORTANT: This document is customer property and is to remain with this unit. Please return to service information packet upon completion of work.

- 1) POE OIL PRECAUTIONS.....Page 5
- 2) EQUIPMENT NOMENCLATURE.....Page 6
- 3) INSULATION GUIDELINES.....Page 7
- 4) INSULATION NOTES.....Page 8
- 5) REFRIGERATION PIPING.....Page 9
- 6) AIR HANDLER LEAK SENSOR INSTALLATION.....Pages 10, 11 and 12
- 7) TXV COIL CONVERSION.....Pages 13, 14, 15, 16, 17, 18, 19 and 20
- 8) FIXED ORIFICE COIL CONVERSION.....Pages 21, 22, 23 and 24
- 9) CASED COIL SENSOR INSTALLATION.....Pages 25, 26, 27, and 28
- 10) LEAK SENSOR FIELD WIRING.....Page 29
- 11) FIXED SPEED ECM AIR HANDLER SETTINGS.....Pages 30 and 31
- 12) MODULAR BLOWERS DIP SWITCHES.....Page 32
- 13) DAIKIN BLUETOOTH AIR HANDLERS AND BLOWERS.....Pages 33 and 34
- 14) MANUALLY PROGRAMING DAIKIN BLUETOOTH AIR HANDLERS.....Pages 35 and 36

Please note that illustrations in these manuals are for reference only and may not show all detail. Also, specifications are subject to change without notice. It is imperative that only the manuals shipped with the equipment be used for each installation.

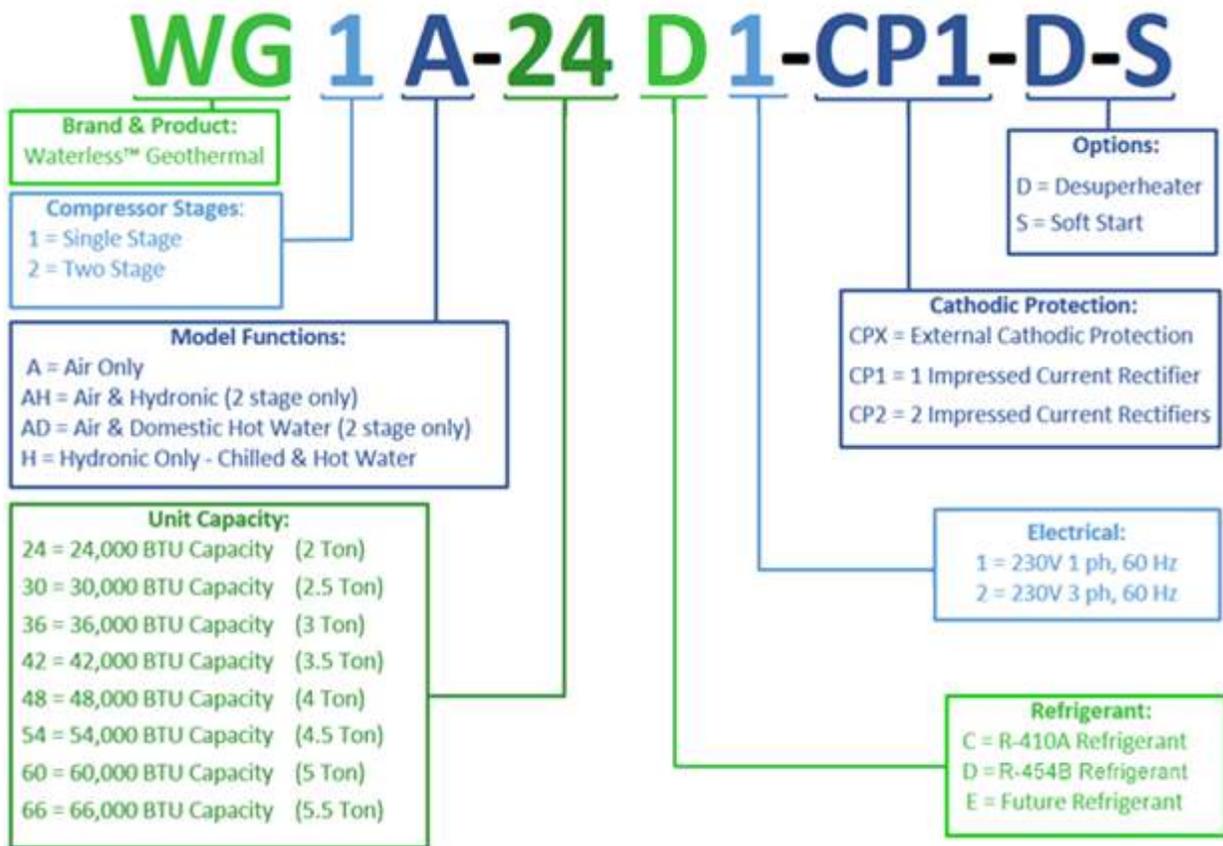
1) POE OIL PRECAUTION

The compressor oil used in a Waterless® Geothermal system is **Copeland Ultra 32-3 MAF**. Using any other brand or type will void the manufacturer's equipment warranty.

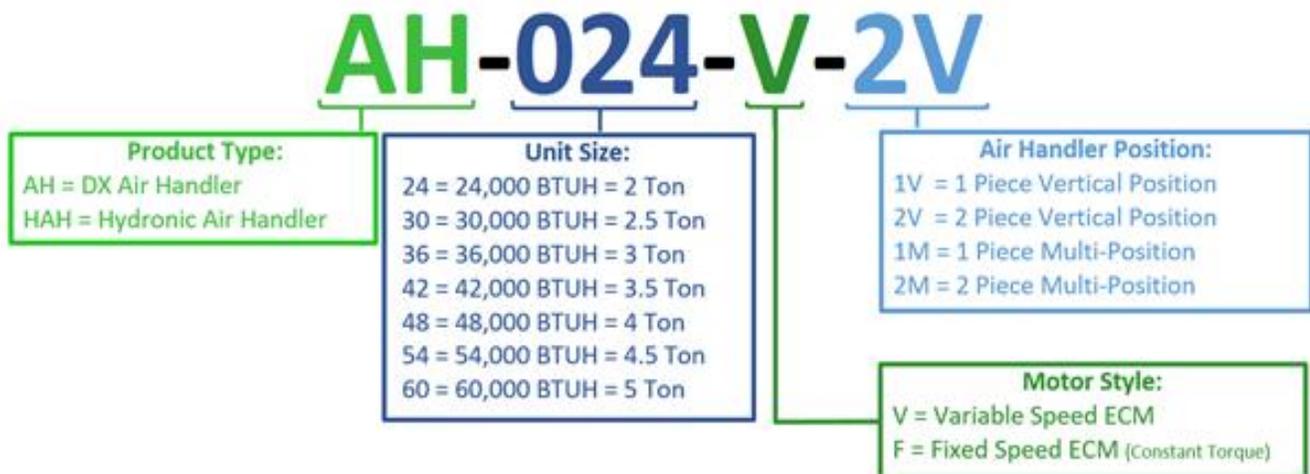
- POE oils absorb moisture rapidly. Do **not** expose oil to atmosphere. Always flow dry nitrogen anytime a system is open to prevent atmosphere from entering any part of the system, as it will make its way to the compressor oil. This includes line sets, earth loops, earth loop manifolds, air handlers, cased coils and any other piece of equipment that is to be connected to the refrigerant circuit. All components **must be swept** of atmosphere with dry nitrogen to keep the system dry when installing or servicing. Flowing dry nitrogen is **not** just for brazing.
- Vacuum pumps will **not** remove moisture from POE oil.
- **Never** open a system to atmosphere while it is under a vacuum.
- A liquid line filter drier is required and installed in every compressor unit from the factory.
- Wrap all filter driers and service valves with a wet cloth when brazing.
- When the system must be open for service, break vacuum after refrigerant recovery with dry nitrogen and always replace the filter drier.

2) EQUIPMENT NOMENCLATURE

COMPRESSOR UNIT



Air Handler Unit



3) Installation Guidelines

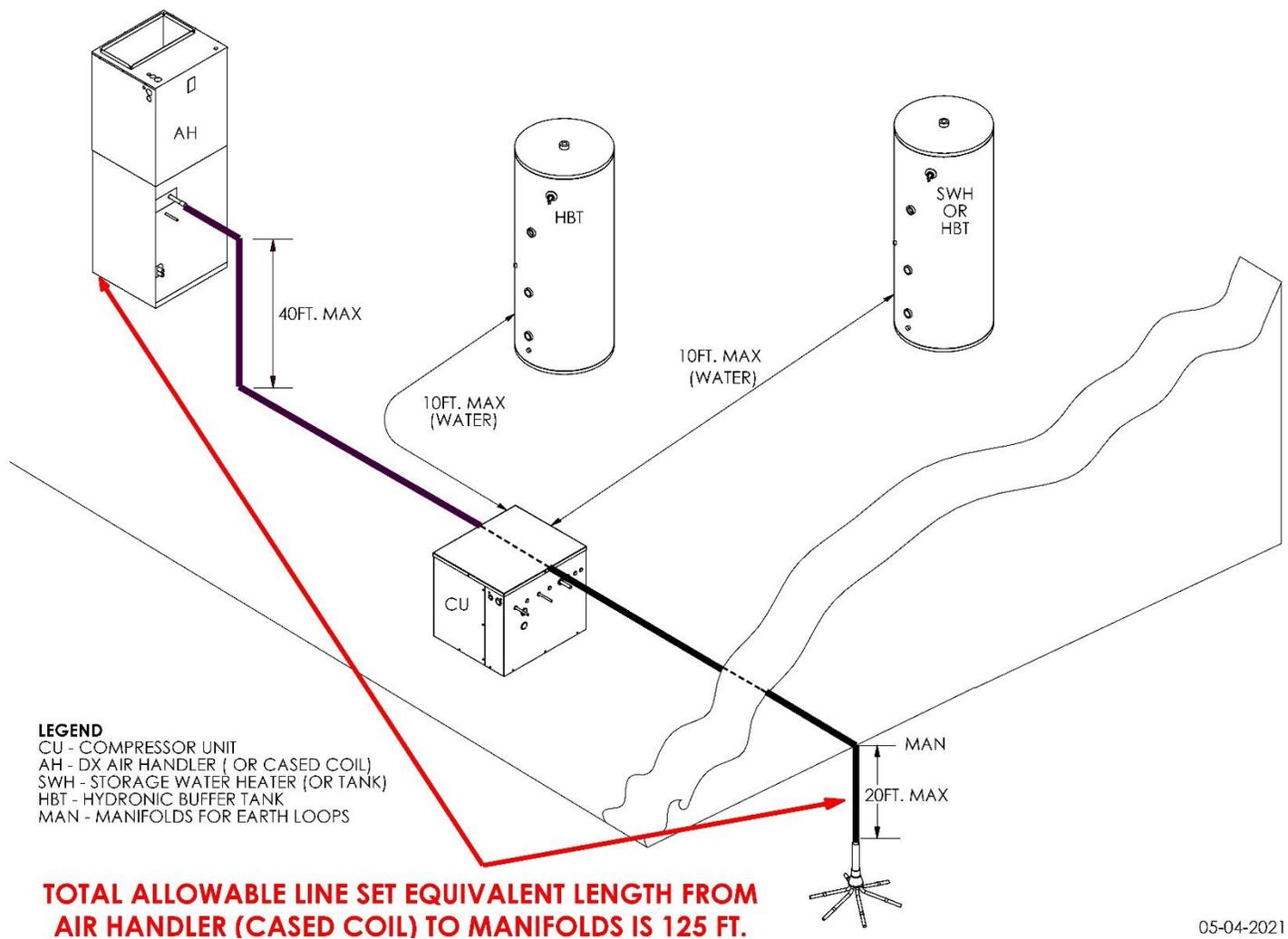
- All refrigerant and water lines between these above ground components must be insulated with at least 1/2" wall thickness Armaflex, Insul-Tube or equivalent insulation.
- All line set fittings must be factored in when calculating equivalent length.
- Please use the following chart to figure the fittings equivalent length.

Pipe Fitting Equivalent Lengths

Long Radius 90 = 3 ft. Coupling = 1 ft. Swaged Connection = 1ft. 45 Degree Elbow = 1.5 ft.

Important Note: Short Radius 90° elbows are NOT permitted to be used in any piping.

General Layout of System Components



05-04-2021

Figure 1

4) Installation Notes

Total Green Mfg. offers two types of air handlers and a cased coil. A multi-position air handler with either a fixed speed ECM motor (2 through 3.5 ton only), or a fully variable ECM motor air handler or, just a cased coil for dual fuel applications. **Please Note: The fixed speed (AMSTxxx1300) air handlers are available only for single stages units, 2 through 3.5 tons for non-air zoned applications. All 2 stage units regardless of size and, single stage units 4 through 5 ton, must use the fully variable AMVTxxx1300 air handler. All air zoning applications must use 2 stage equipment.**

Total Green Mfg. Uses Daikin air handlers and cased coils. These air handlers and cased coils must be converted and an R-454B leak sensor must be installed in the equipment in accordance to this manual. The Daikin Manual shipped with the equipment should be referenced for the physical installation, line voltage and heat kit installation only. This manual is to be followed for field wiring of the low volt control, blower settings and installation of the R-454B leak sensor.

Only air handlers and cased coils for R-454B equipment purchased directly from, or approved by Total Green Mfg. may be used with Waterless® Geothermal R-454B systems. All others will void the manufacturer's warranty, and will not comply with UL/ETL safety requirements for use with R-454B refrigerant.

Please Note: All required CFM (airflow) settings listed in Sections 3 and 4 are based on ext. static pressures of 0.5 inches WC or less. Exceeding 0.5 inches WC ext. static pressures will reduce airflow below the requirements for Total Green Waterless® Geothermal equipment reducing efficiency and reliability. This may also result in equipment damage that would not be covered by warranty.

Leak Sensor Information: The leak sensors used in Total Green's Waterless® Geothermal systems are designed for no less than a 15 year service life. Should a sensor failure occur during the life of the system, contact Total Green. Mfg. for replacement. No other sensor type nor source should be considered. A sensor failure will result in the equipment staying in leak mitigation mode.

5) Refrigerant Piping

For field supplied line set sizes, refer to Figure 2. Line set sizes are for both field manifolds to compressor unit and from compressor unit to air handler or cased coil. Line set length is from field manifolds to air handler or cased coil with the compressor being anywhere in between. Line set length **cannot** exceed 125 ft. of equivalent length. For maximum efficiency, line set lengths should not exceed 100 ft. Line set lengths as stated are equivalent lengths, not actual. Fittings must be accounted for. Example; a coupling is equal to 1 ft. of line set and a long radius elbow is equal to 3 ft. of line set. In addition, never use close radius elbows in the system piping.

Pipe Fitting Equivalent Lengths

Long Radius 90 = 3 ft. Coupling = 1 ft. Swaged Connection = 1 ft. 45 Degree Elbow = 1.5 ft.

Important Note: Short Radius 90° elbows are NOT permitted to be used in any piping.

LINE SET PIPING MAY REQUIRE ADAPTERS. TOTAL GREEN MFG. ATTACHES AND SHIPS THESE ADAPTERS WITH COMPONENTS AS REQUIRED. HOWEVER, SOME ADAPTERS MAY NEED TO BE FIELD SUPPLIED. PLEASE BE SURE TO REVIEW THE REQUIRED LINE SET SIZE CHART BELOW TO ACCOUNT FOR ANY NEEDED ADAPTERS.

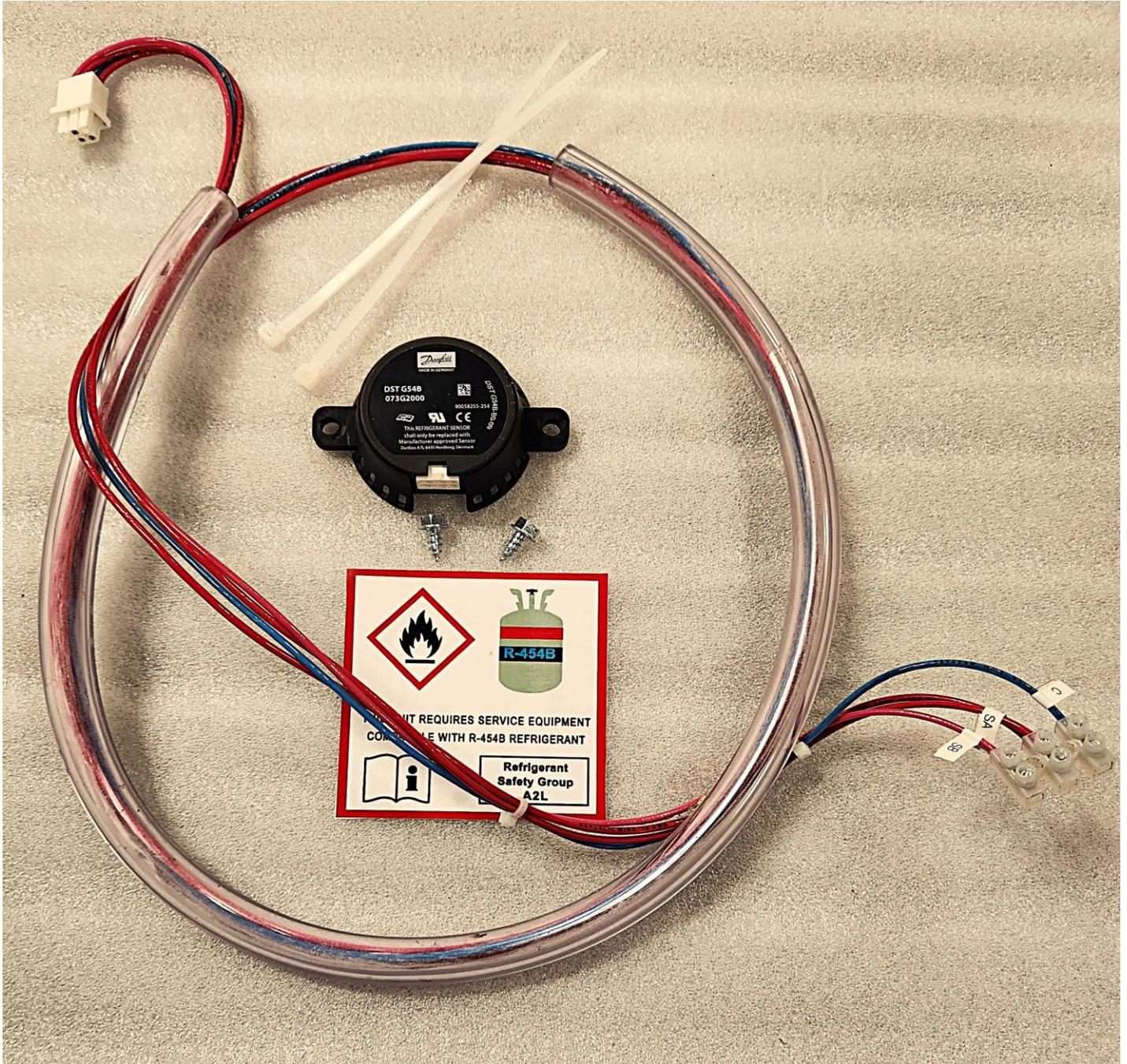
R-454B EARTHLOOP, AIR HANDLER, CASED COIL LINE SETS		
COMPRESSOR UNIT SIZE	R-454B LINE SET O.D., INCHES	
	LIQUID	VAPOR
2.0 Tons (-024)	3/8	3/4
2.5 Tons (-030)	3/8	3/4
3.0 Tons (-036)	3/8	3/4
3.5 Tons (-042)	1/2	7/8
4.0 Tons (-048)	1/2	7/8
4.5 Tons (-054)	1/2	7/8
5.0 Tons (-060)	1/2	7/8

Figure 2 Line Set Size for Units using R-454B

6) Air Handler Leak Sensor Installation

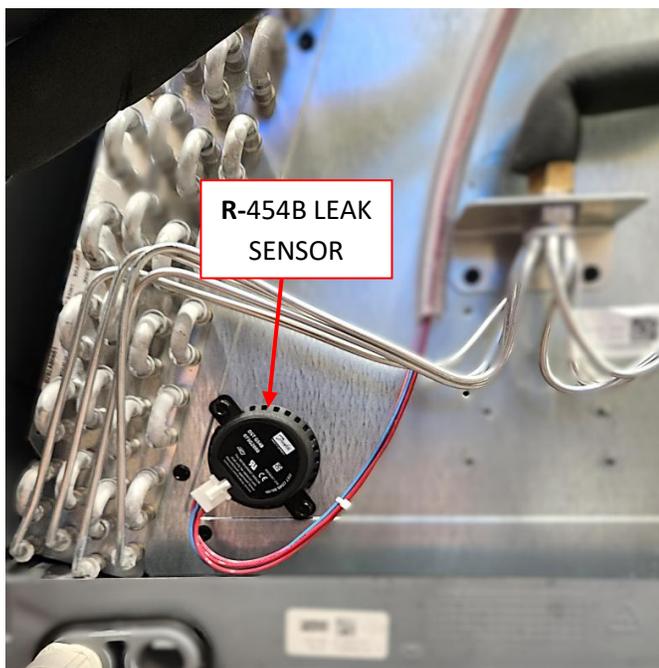
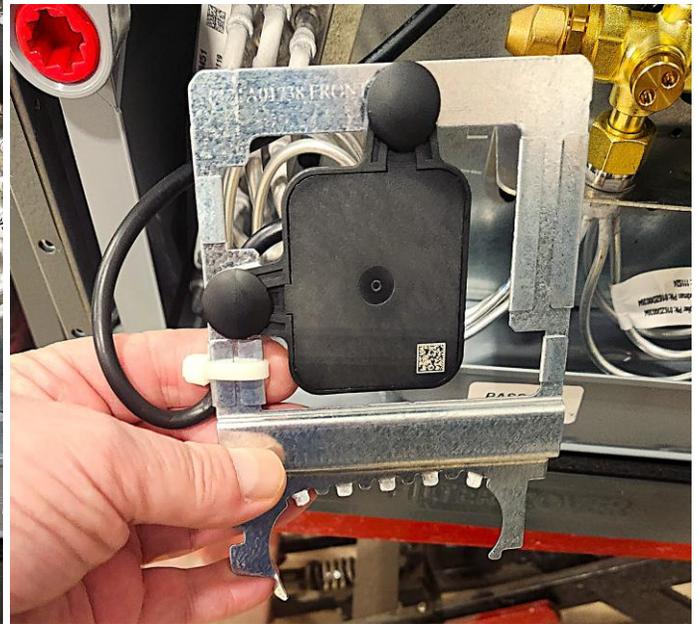
Each air handler is to be equipped with a leak sensor and terminals. Sensor kits will be shipped with the compressor units.

Air Handler Kit Leak Sensor Kit



Kit contains the sensor, a connection cable in protective tubing, 2 sheet metal screws for sensor mounting, 2 zip ties to secure the connection cable and, an R-454B label that must be affixed to the front panel of the air handler unit.

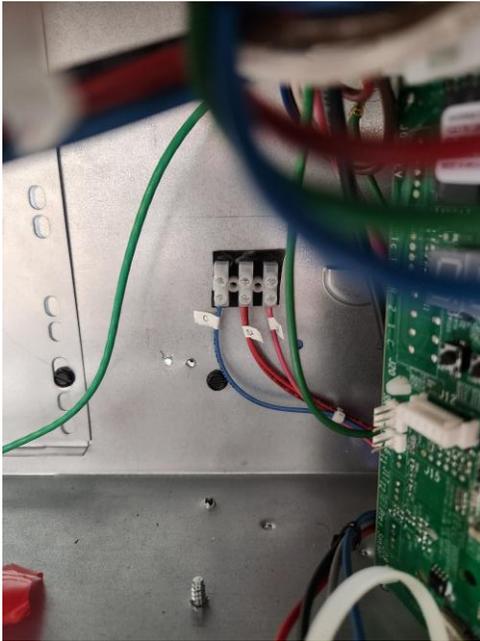
The air handler will have an R-32 leak sensor mounted on a bracket that slips over the drain ports of the drip pan. This sensor needs to be moved out of the way for the cased coil conversion and installation of the R-454B leak sensor. It must be put back after. Do **NOT** disconnect or completely remove this sensor. It is needed for the air handler to function.



After the coil conversion is complete as shown in Section 7, install the R-454B sensor at a 45 degree angle on the bottom left corner of the coil as shown using the supplied sheet metal screws. Connect the cable leaving a drip loop as shown. This mounting position allows the air handler to be installed vertically or horizontally while being in the ideal position to detect a refrigerant leak. At this time, the R-32 sensor can be re-installed. Keep in mind as although this is not the primary leak detector, it **MUST** be left in the air handler blower circuit for proper blower function.



Fish the wiring with the protective tubing up the coil as shown. Pass the terminal end through the hole.

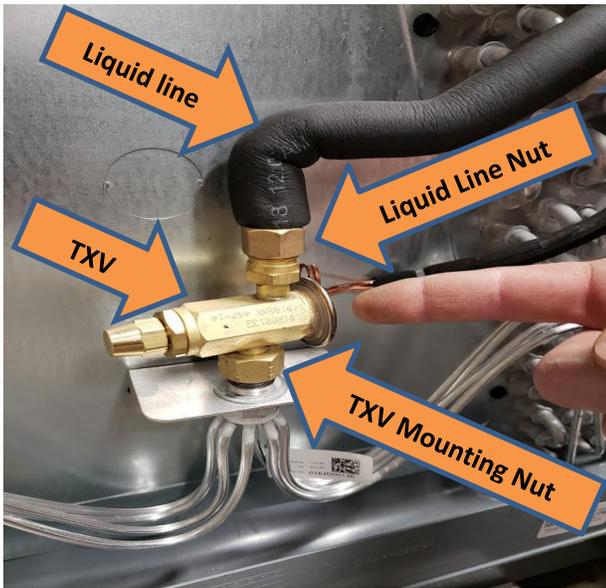


Clean the area where the terminal strip is to be mounted with rubbing alcohol. Peel the backing off of the two sided tape affixed to the terminal block and adhere it to the cabinet. Use the zip ties to secure the wiring.

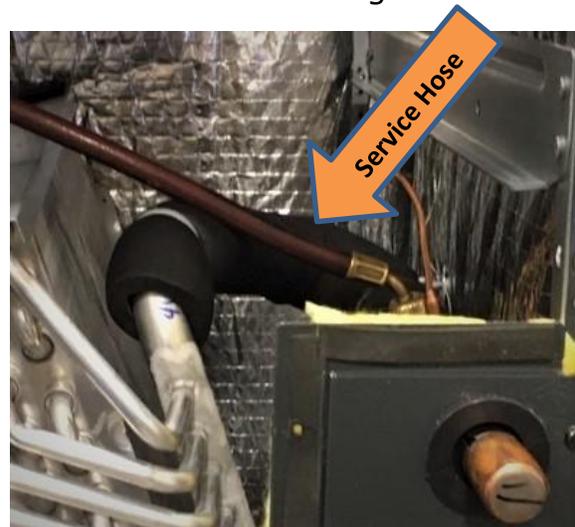
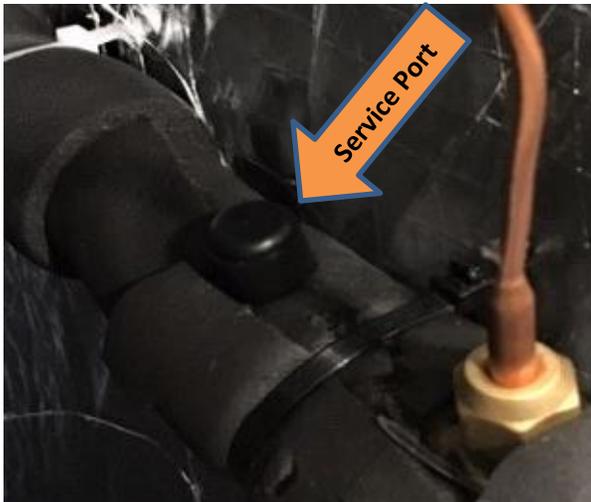
7) TXV Coil Conversion

(TXV Removal)

Step 1: Remove the TXV assembly from the aluminum distributor and the liquid line by loosening the mounting nuts. Loosen slowly as the coil is under nitrogen pressure which you will be releasing. Be sure to save the liquid line and the nylon gasket. These will be reused later in these steps.

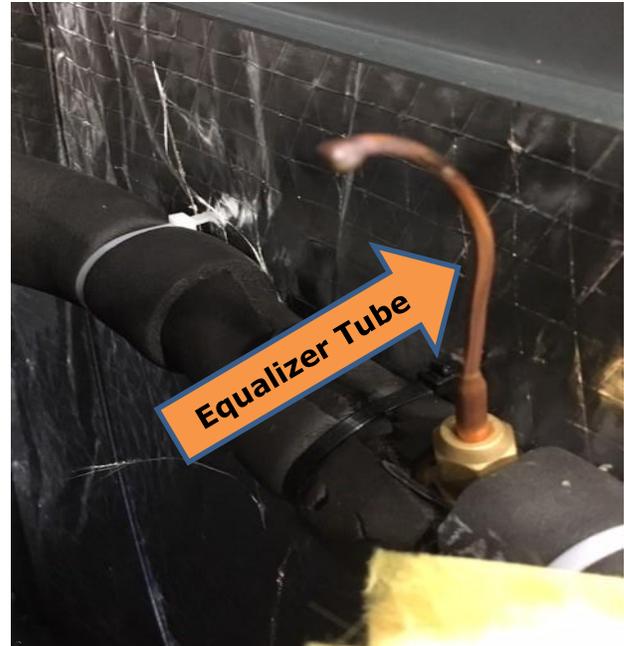


Step 2: Locate the access port next to the TXV equalizer tube connection and attach a service hose for nitrogen purging. Leave a small amount of nitrogen to trickle through as you are working.

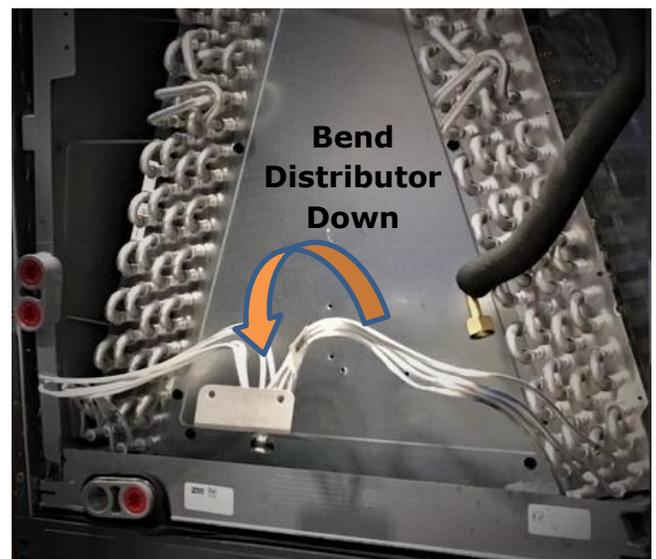


(TXV Removal)

Step 3: With nitrogen flowing as describe in step 2, the equalizer tube from the TXV can be cut just a few inches from where it connects to the vapor line and brazed closed. Be sure to remove any coating that may be on the tube prior to brazing the cut end. The TXV sensing bulb tube can be cut at the bulb clamped to the suction line. It is not necessary to remove the bulb.



Step 4: Remove screws from distributor mounting bracket and very carefully bend tubing down so as to avoid kinking until the opening of the distributor is pointing down towards the floor.



(TXV Removal)

Prior to the next steps, if the compressor unit being installed is 42 (3.5 Tons) or larger, obtain a 5/16" flute drill bit. It will be needed for drilling out the distributor in the next step. A flute bit makes a clean cut and will not bind like a standard drill bit can. Bit binding can damage the distributor. **DO NOT** drill out distributor for compressor units 36 (3 Tons) or smaller.

Distributor Quick Reference Chart

	1 pc Air Handler		Modular Air Handler & Cased Coil	
Step 1	Remove TXV		Remove Orifice	
Step 2	DRILL OUT DISTRIBUTOR ↓ (If Applicable) ↓			
2 ton	No	No	No	No
2½ ton	No	No	No	No
3 ton	No	No	No	No
3½ ton	Yes	Yes	Yes	Yes
4 ton	Yes	Yes	Yes	Yes
4½ ton	Yes	Yes	Yes	Yes
5 ton	Yes	Yes	Yes	Yes

(TXV Removal)

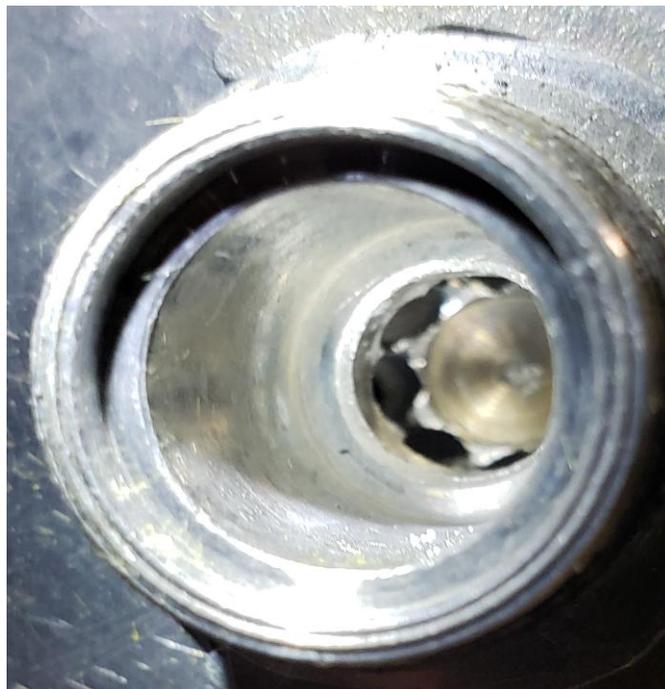
Step 5: Once the TXV is removed, for compressor unit sizes 42 (3.5 Tons), 48 (4 Tons), 54 (4.5 Tons) and, 60 (5 Tons) only, drill just the shelf out of the distributor with a 5/16" flute drill bit. Increase the nitrogen flow into the coil when drilling to blow out and prevent shavings from entering the distribution lines.



Flute Bit

(TXV Removal)

Step 6: While still using nitrogen pressure, use a 1/16" drill bit to assure no burrs on the distribution tube ends. Do this by hand. Do **NOT** use a drill.



(TXV Removal)

Step 7: After drilling and cleaning the distributor, carefully bend tubing back so that the distributor is approximately 3" higher than its original position to make up the difference in space from having removed the TXV. Raise it high enough so as the liquid line, after having been placed back through the cabinet grommet, can be attached directly to the distributor.

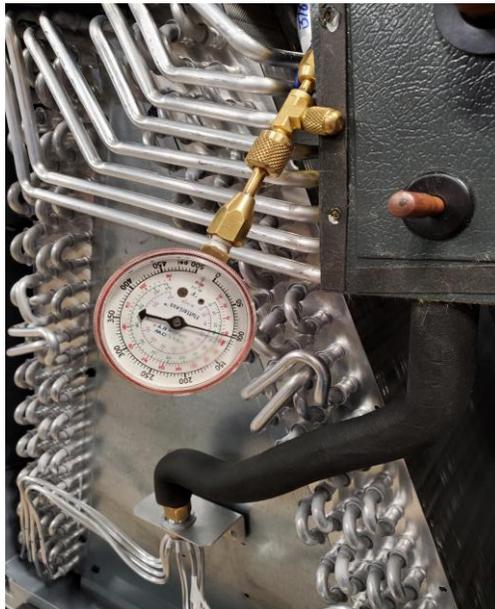


Step 8: Assure the gasket is installed as shown, then screw the liquid line nut directly to the distributor. Use care so as not to damage the aluminum threads by cross threading and/or over tightening.

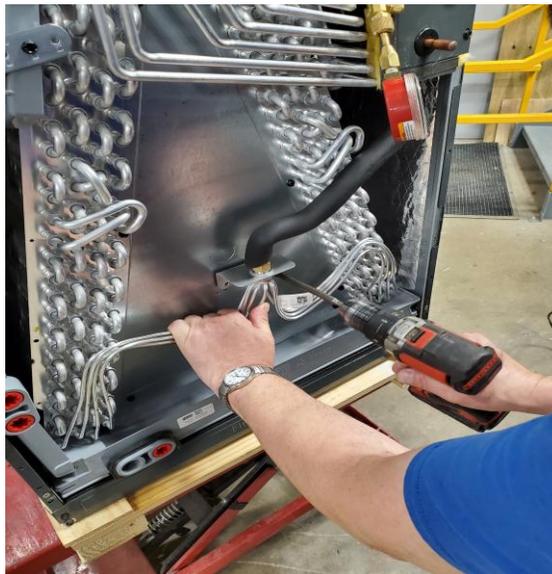


(TXV Removal)

Step 9: Prior to remounting the distributor bracket, you should pressure test the distributor to assure no leaks.

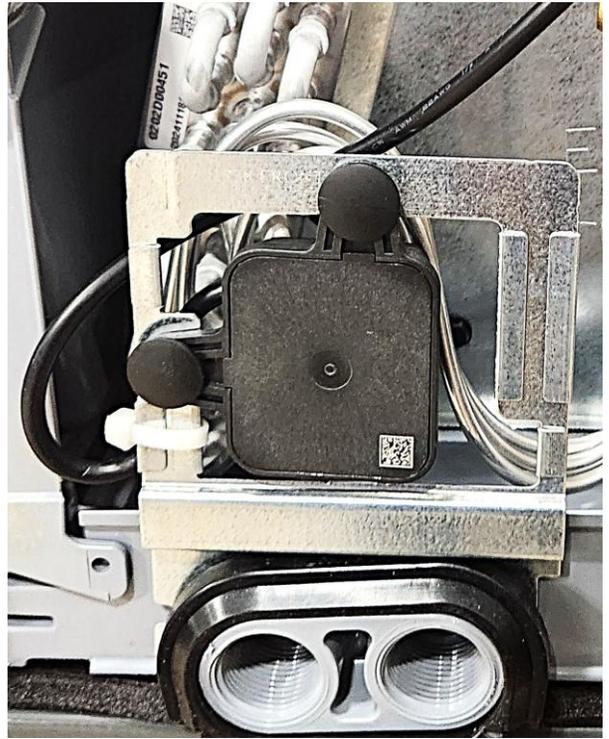
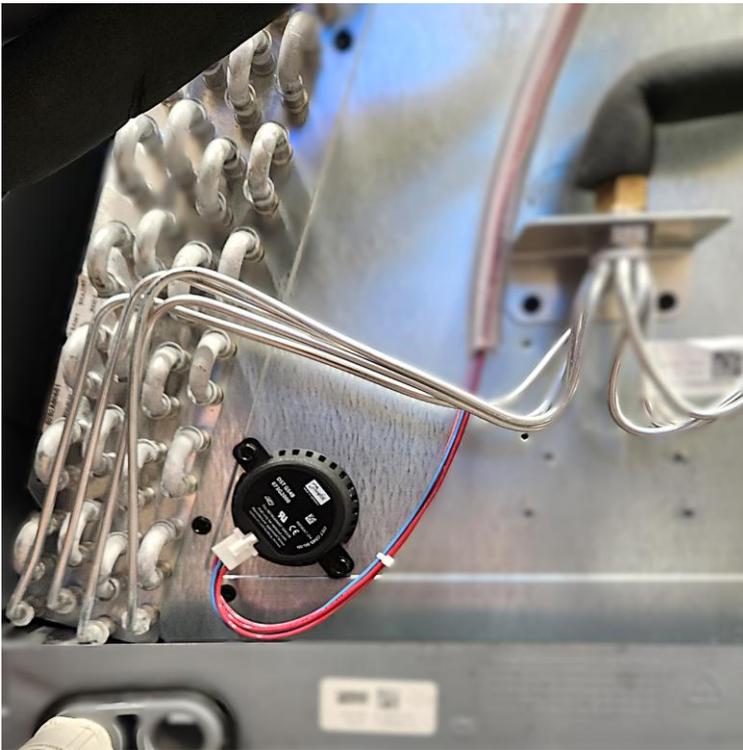


Step10: Now the distributor can be remounted at a higher location to make up the space where the TXV was. Using the original screws, by excreting light pressure on the drill, allow the screws to cut new holes and snug up the bracket and screws.



(TXV Removal)

Step11: Re-fastened the R-32 sensor back to its original location.



Use the TGM supplied label and affix to the air handler, near the liquid line entering, stating the conversion has been done. Affix the R-454B label to front cover of the air handler as well. This completes the TXV removal and coil conversion for a 1-piece air handler.

The distributor on this coil has been drilled out to a 5/16 inch opening to integrate with a Direct Exchange

 **WATERLESS®
GEOTHERMAL**

Drilled Out Date: _____

COIL REPLACEMENT NOTICE:
If coil is ever replaced, the installer must convert the coil accordingly. Contact Total Green Mfg. Corp. at 419-678-2032 for conversion instructions

THIS UNIT REQUIRES SERVICE EQUIPMENT
COMPATIBLE WITH R-454B REFRIGERANT

 **Refrigerant
Safety Group
A2L**

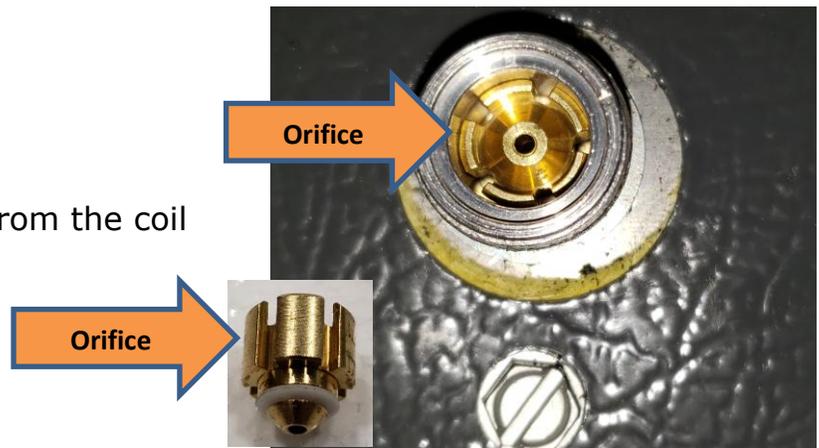
8) Fixed Orifice Coil Conversion

(Orifice Removal)

Step 1: Carefully remove the orifice nut, plastic cap, and nylon gasket from the cased coil. Coil is under nitrogen pressure.



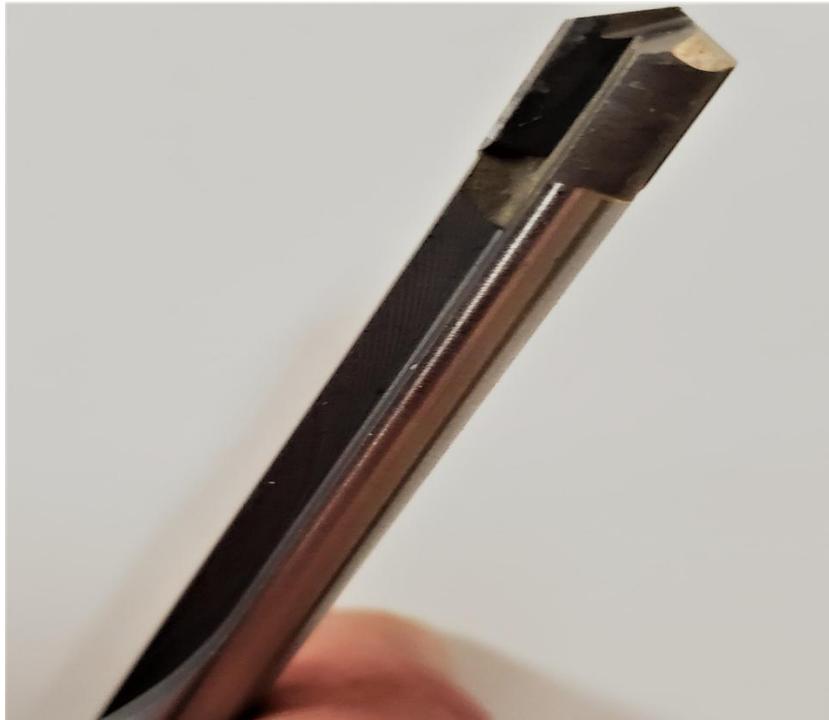
Step 2: Remove the fixed orifice from the coil leaving the orifice cavity empty.



Prior to the next steps, if the compressor unit being installed is 42 (3.5 Tons) or larger, obtain a 5/16" flute drill bit. It will be needed for drilling out the distributor in the next step. A flute bit makes a clean cut and will not bind like a standard drill bit can. Bit binding can damage the distributor. **DO NOT** drill out distributor for compressor units 36 (3 Tons) or smaller.

Distributor Quick Reference Chart

	1 pc Air Handler		Modular Air Handler & Cased Coil	
Step 1	Remove TXV		Remove Orifice	
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2 ton	No	No	No	No
2½ ton	No	No	No	No
3 ton	No	No	No	No
3½ ton	Yes	Yes	Yes	Yes
4 ton	Yes	Yes	Yes	Yes
4½ ton	Yes	Yes	Yes	Yes
5 ton	Yes	Yes	Yes	Yes



Flute Bit

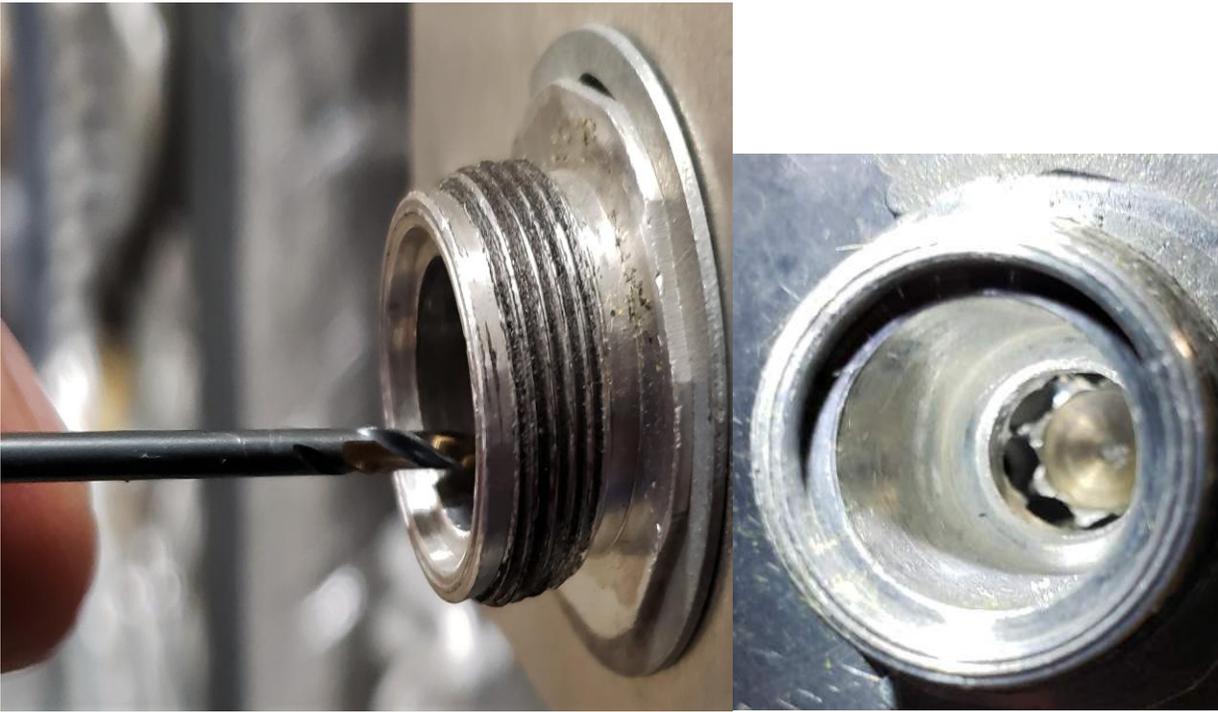
(Orifice Removal)

Step 3: Once orifice is removed, for compressor unit sizes 3½, 4, 4½, 5 and 5½ tons, drill out the distributor with a 5/16" flute drill bit. No drilling is required for air handlers used on 2, 2½ and 3 ton compressor units. Use nitrogen pressure when drilling to blow out and prevent shavings from entering the distribution lines. Refer to [Section 1, Step 2](#). The service port for your nitrogen hose is in the same location.



Once orifice is removed, drill out the distributor with a 5/16" flute drill bit for systems sizes 3 ½ tons or greater.

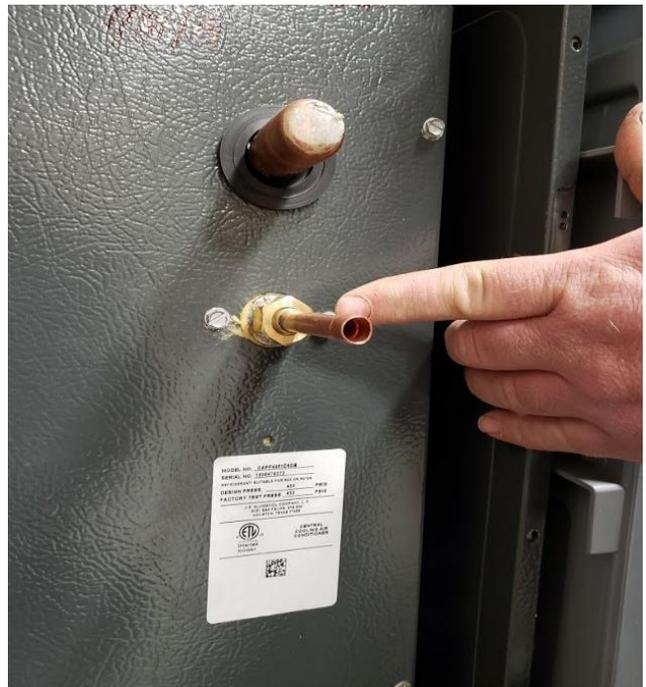
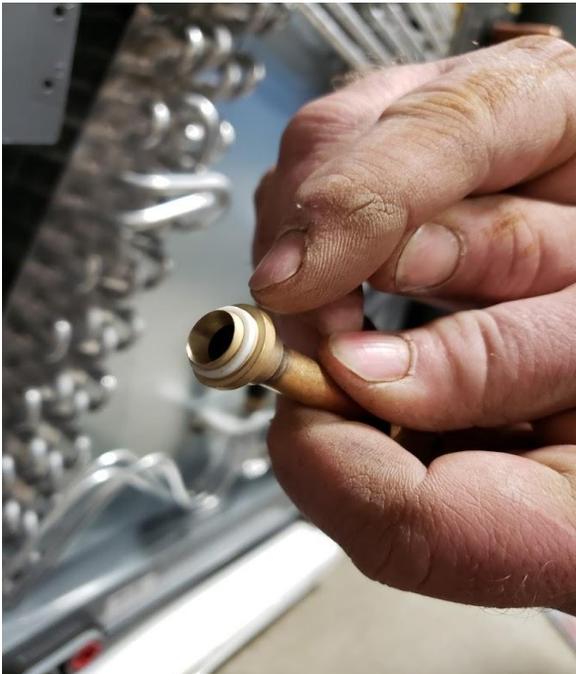
Step 4: While still using nitrogen pressure, use a 1/16" drill bit to assure no burrs on the distribution tube ends. Do this by hand. Do **NOT** use a drill.



(Orifice Removal)

Important Note: When brazing a line set to the tailpiece adapter of the coil, remove the nylon gasket to prevent overheating and damaging the gasket, flow nitrogen through the tubing and braze the connection to the tailpiece, re-attach the gasket and re-connect the nut to the aluminum threads stubbed out the front of the coil.

Step 5: Place the nylon gasket on the tailpiece adaptor, and install the tailpiece adapter (shipped with the coil) to the aluminum nut stubbed out the front of the cased coil. Use care so as not to damage the aluminum threads by cross threading and/or over tightening.



This completes the fixed orifice coil conversion for a cased coil & modular air handler. Use the TGM supplied label and affix to the air handler near the liquid line entering stating the conversion has been done.

The distributor on this coil has been drilled out to a 5/16 inch opening to integrate with a Direct Exchange

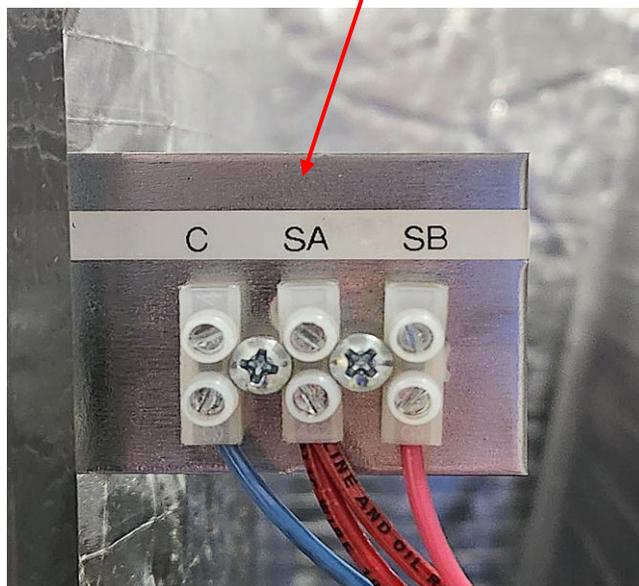
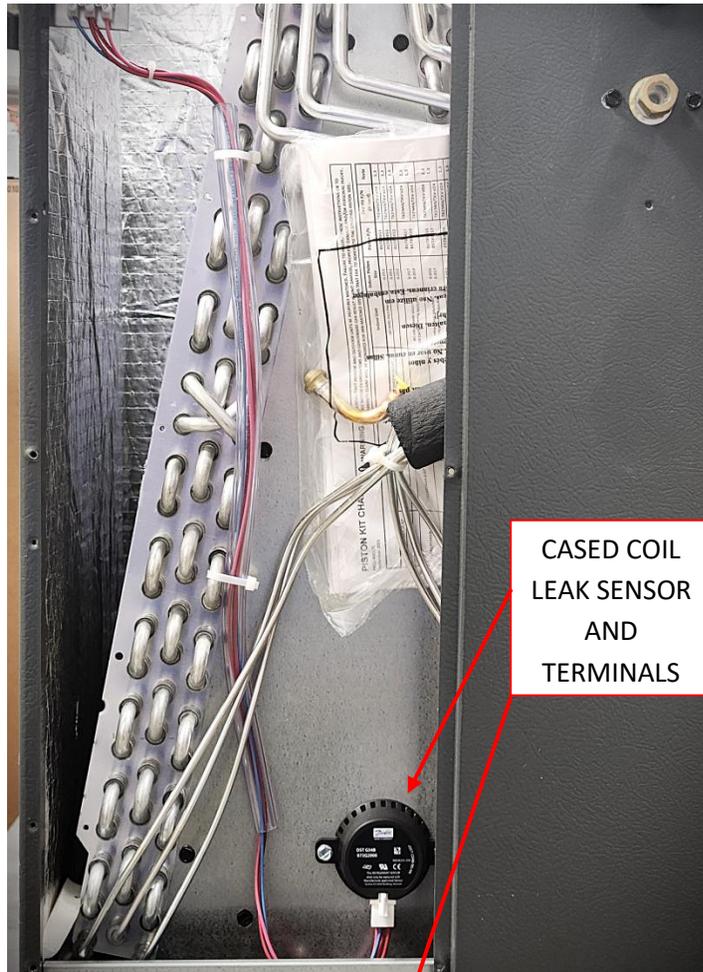
 **WATERLESS®**
GEOTHERMAL

Drilled Out Date: _____

COIL REPLACEMENT NOTICE:
If coil is ever replaced, the installer must convert the coil accordingly. Contact Total Green Mfg. Corp. at 419-678-2032 for conversion instructions

9) Cased Coil Leak Sensor Installation

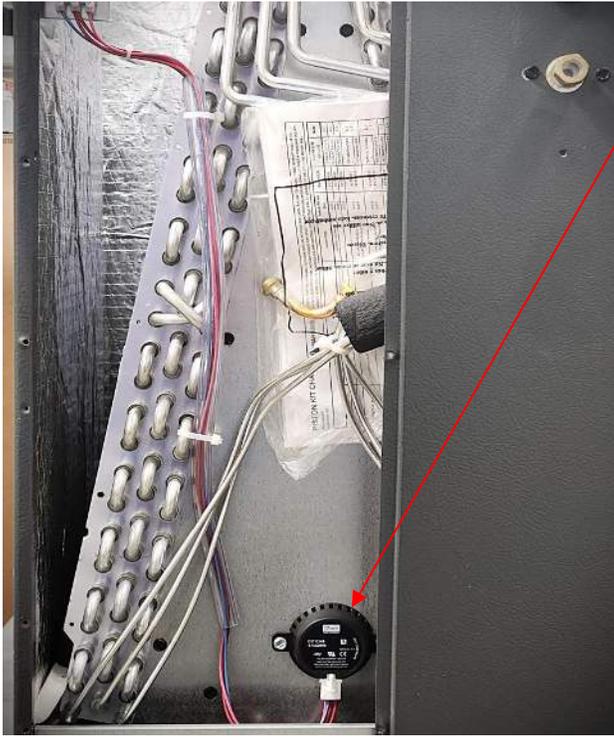
Each air handler and cased coil are to be equipped with a leak sensor and terminals as shown below in figure 3. Sensor kits will be shipped with the compressor units.



Cased Coil Kit

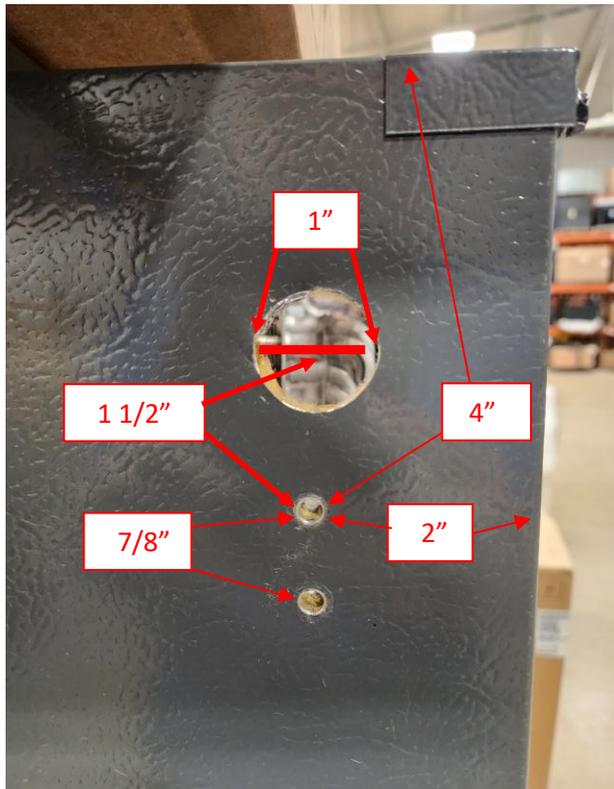


Kit contains the sensor, a connection cable in protective tubing with terminal mounting bracket, 2 sheet metal screws for sensor mounting, 2 machined screws for terminal mounting bracket, 2 zip ties to secure the connection cable, a rubber grommet for field wiring to pass through, and an R-454B label that must be affixed to the front panel of the cased coil.



Using the sheet metal screws supplied in the kit as shown in the picture to the left. Be sure sensor is centered and about 1" above the top of the drain pan. Attach the plug to the sensor and leave a drip loop as shown.

Following the measurements on the picture to the left, make a mark 4" from the top of the cabinet 2" from the front edge. Measure down 7/8" and make another mark. Drill a hole at these marks using a 3/16" drill bit. Measure 1 1/2" up from the top 3/16" hole and make a mark. Using a 1" knockout or hole saw, make a 1" hole. The 1 1/2" mark is your center. Insert the supplied rubber grommet into the 1" hole. Cut a slit in the grommet for the field wiring. Mount the terminal bracket, terminals facing the front from the inside using the supplied machine screws to mount the bracket.





Use the supplied zip ties to secure the wiring.



Affix the supplied R-454B label to the front of the cased coil cabinet.

10) Leak Sensor Field Wiring

Each compressor unit will have the same three terminals, “C”, “SA” and “SB” as shown in figure 4A and 4B below. Using 18 gauge thermostat wire, these three terminals must be wired from the compressor unit to the air handler or cased coil. Please refer to the specific compressor unit manual located in the unit service packet for more detail.

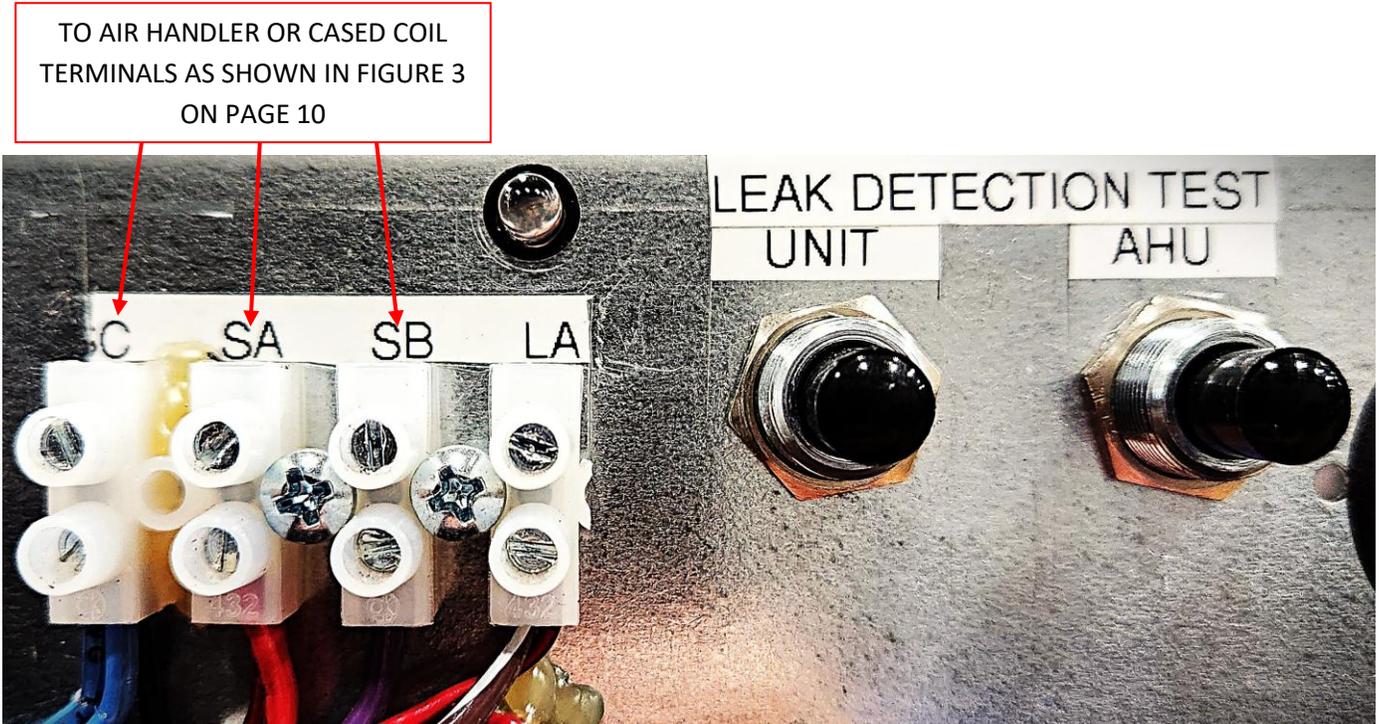


Figure 4A

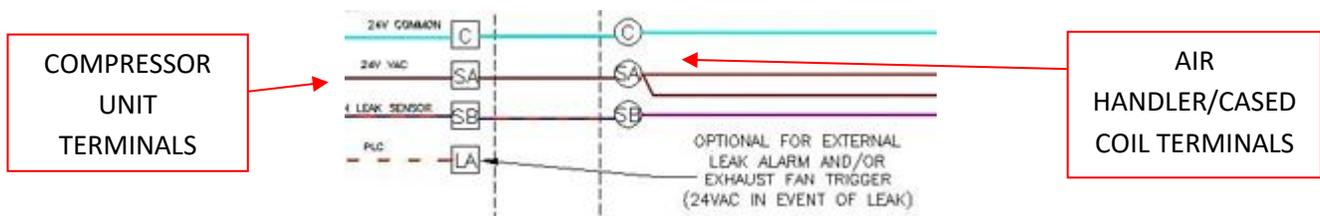


Figure 4B

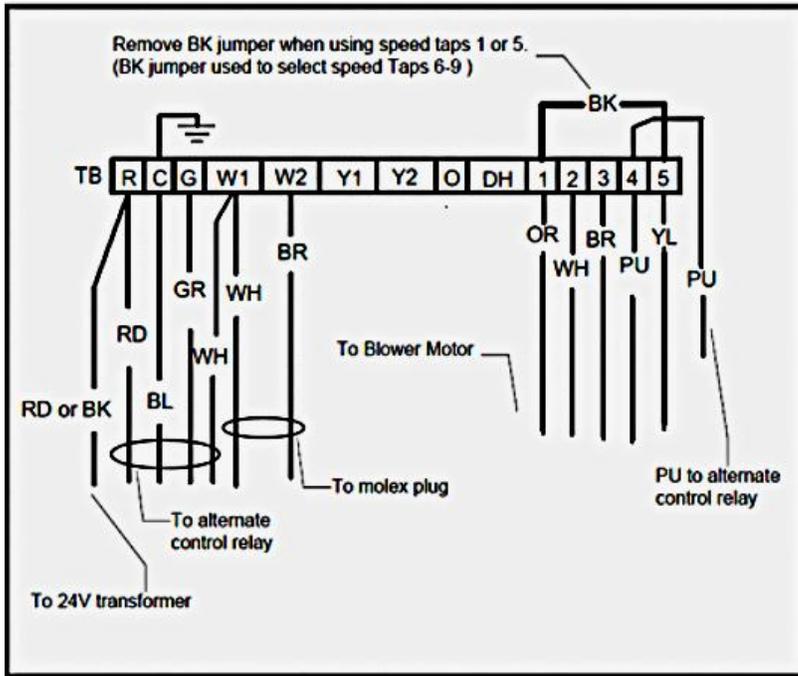
NOTE: Failure to make these connections will result in the compressor unit remaining in lock out and leak mitigation mode.

Details regarding the “LA” (LEAK ALERT) terminal shown in figure 4A and 4B are explained in the compressor unit manual in your unit service packet.

Details regarding the “LEAK DETECTION TEST” buttons along with a deeper explanation and use of the “LA” (LEAK ALERT) terminal shown in figure 4A and 4B are given in the “LEAK MITIGATION MANUAL” in your unit service packet.

11) Fixed Speed ECM air handler settings (For Single Stage Units Only. Not Recommended for Zoning).

AMSTxx1x00xx air handlers feature a 9 speed ECM blower motor. Changing the 24 VAC leads to the desired speed tap on the terminal block will adjust CFM. Please note in figure 5 below, there is a black jumper between terminals 1 and terminal 5. Remove this jumper for speeds Tap 1 through Tap 5. Please reference table 1 below. Also, pay attention to the purple wire (PU) as this wire must be used and moved accordingly as per the Tap tables below.



	OR	WH	BR	PU	YL	
	T1	T2	T3	T4	T5	TB Engaged
Tap-1	PU					T1
Tap-2		PU				T2
Tap-3			PU			T3
Tap-4				PU		T4
Tap-5					PU	T5

Table 1 NO JUMPER INSTALLED

Figure 5 (air handler as shipped)

Please note that the “Y1” and “Y2” terminals for the air handler will **not** be used. Only the “G” (FAN) terminal is used on single stage equipment when using the AMST air handler. The “G” terminal from the compressor unit air handler terminal strip is tied to the air handler’s “G” terminal. For all heat kit sizes, a jumper between “W1” and “W2” **must** be installed.

!!!!IMPORTANT!!!! AMST model air handlers can only be used on single stage units up to 3.5 tons. For two stage units and single stage units larger than 3.5 tons, a fully variable air handler must be used.

Please use the tap settings listed below for the compressor unit tonnage and the specific AMST air handler to be used. These settings are based on a 0.5 in wc. static pressure and the required 400 CFM of air flow per unit ton.

Tap Settings for the 1300 Series.

- 1) **WG1A-24D two ton unit. Air Handler model AMST30BU1300. Use Tap 2. Follow table 1.**
- 2) **WG1A-30D two and half ton unit. Air handler model AMST36CU1300. Use Tap 2. Follow table 1.**
- 3) **WG1A-36D three ton unit. Air handler model AMST42CU1300. Use Tap 3. Follow table 1.**
- 4) **WG1A-42D three and half ton unit. Air handler model AMST48CU1300. Use Tap 3. Follow table 1.**

12) Modular Blower Dip Switches

DIP SWITCH SETTINGS

Instructions on the inside cover of the air handler are **NOT** detailed enough to properly set the dip switches for use with Total Green Waterless® Geothermal systems.

Waterless® Geothermal forced air systems require at least 400 CFM or greater airflow per unit ton. The chart below lists the required dip switch (SW) settings for the modular blower section for use with Waterless® Geothermal forced air systems based on a 0.5 in wc. **External static pressure must not exceed 0.5 inches WC.**

MBVK120x	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
	1	2	3	4	5	6	7	8	9	10	11	12	13	
	2 ton	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	*	*	*	OFF	ON
	2 1/2 ton	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	*	*	*	OFF	ON
3 ton	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	*	*	*	OFF	ON	
MBVK160x	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
	1	2	3	4	5	6	7	8	9	10	11	12	13	
	3 ton	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	*	*	*	OFF	ON
	3 1/2 ton	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	*	*	*	OFF	ON
4 ton	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	*	*	*	OFF	ON	
MBVK200x	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
	1	2	3	4	5	6	7	8	9	10	11	12	13	
	3 1/2 ton	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	*	*	*	OFF	ON
	4 ton	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	*	*	*	OFF	ON
	4 1/2 ton	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	*	*	*	OFF	ON
5 ton	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	*	*	*	OFF	ON	

HEAT STRIP SIZE *	SW	SW		
	9	10	SW 11	
	5 KW	ON	ON	OFF
	8 KW	ON	OFF	OFF
	10 KW	OFF	ON	ON
	15 KW	OFF	ON	OFF
20 KW	OFF	OFF	ON	

Please Note: For fully variable speed blowers, place a jumper wire between “Y1” and “Y2” when used with single stage compressor units. Two stage units will use and have a dedicated “Y1” for first stage and “Y2” for second stage. Do not jumper two stage equipment. Please refer to your compressor unit’s installation manual for field wiring.

13) Daikin Bluetooth Air Handlers and Blower Modules. NON-Communicating Equipment

Please note that Daikin air handlers used with Waterless® Geothermal equipment is moving to Bluetooth air handlers to replace the older dip switch models. Bluetooth air handlers require set up with the Goodman Cool Cloud app or manual setup using the LED display and menu buttons on the board inside the air handler. The Cool Cloud app can be found at <https://www.coolcloudhvac.com/>.

In addition, the following link will take you to an online video tutorial for setting these air handlers up with non-communicating equipment such as our Waterless® Geothermal compressor units.



https://partnerlinkmarketing.goodmanmfg.com/videos/default-source/default-video-library/1_connecting_non_communicatingf7244e77073d629eabb1ff0300454ea0.mp4

The Daikin manual inside of the air handler must be thoroughly reviewed.

When setting up manually, use the 3 red buttons below the display on the air handler control board. The right and left buttons are used to scroll through the menu and, the center button is used to enter your settings.

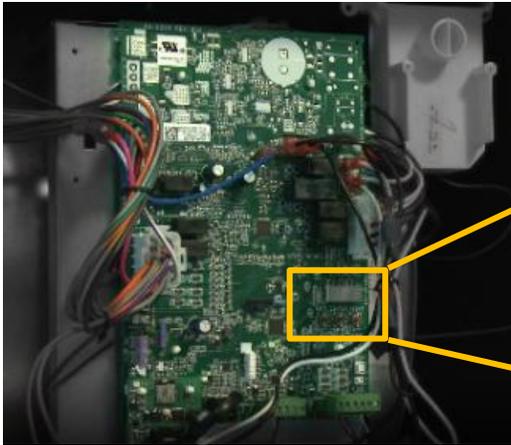
The following settings must be used when connecting to Waterless® Geothermal compressor units.

- 1) **CFM Setting**: Airflow is based on 400 CFM per unit ton. When in the Cool Cloud app or manually setting up the air handler, the selected tonnage must match the compressor unit. For example, based on Waterless® Geothermal model nomenclature, a model WGXX-24XX is 2 tons, WGXX-30XX is 2.5 tons, WGXX-36XX is 3 tons and so on. When manually setting up, scroll using the left or right buttons until “ton” appears on the display then, press the center button once. Scroll with the left or right buttons until the correct tonnage appears on the display. Once the correct tonnage appears on the display, press the center button again to lock in the setting.
- 2) **Single or Two Stage Equipment Setting**: When in the Cool Cloud app or when manually setting up from the board in the air handler, scroll through the menu using the left or right buttons until “ODS” appears on the display. Press the center button and scroll left or right. Select 1HP for single-stage equipment or 2HP for two-stage equipment. Once the correct setting appears on the display, press the center button to lock in the setting.

- 3) Air Flow Profile Setting: This setting sets the length of time for the blower to ramp up to full speed. When in the Cool Cloud app or when manually setting up from the board in the air handler, scroll through the menu using the left or right buttons until "CAP" appears on the display. Press the center button then, scroll with the left or right buttons until the number 1 appears on the display then, press the center button again to lock in the setting. Do **not** use any other setting but 1. This is the fastest ramp up time and **must** be used with all Waterless® Geothermal compressor units.
- 4) Heat Kit Size. When in the Cool Cloud app or when manually setting up from the board in the air handler, scroll through the menu using the left or right buttons until "EHt" appears on the display. Press the center button and scroll left or right. Select the KW value that matches the installed heat kit. Example: 5KW, 10KW or 15KW. Once the correct heat kit size is displayed, press the center button again to lock in this setting.
- 5) Once all of the above settings have been entered, scroll left or right until "IDL" is displayed. The air handler should now be operational. Now other settings should be changed.

14) Manually Programming Daikin Bluetooth Air Handlers and NON-Communicating Equipment

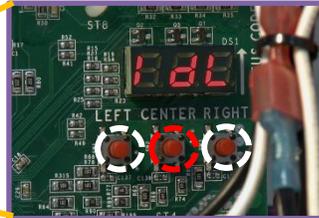
(4 Key Features need to be programmed into the A/H)



Right Button = Scrolls through Menu options

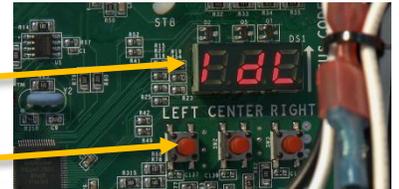
Middle Button = Enter

Left Button = Scrolls through Menu options

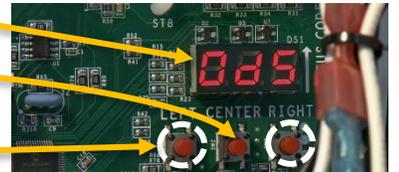


1. Programming for Single or Two Stage Equip:

Step 1: Power ON the air Handler (IDL will display on the board)



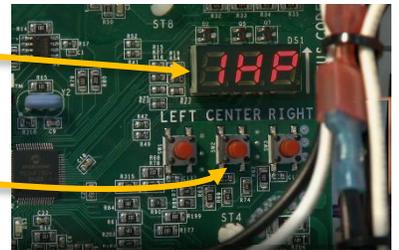
Step 2: Push either the Right or the Left programming buttons until the display reads **OdS** (ODS stands for Outdoor Setup)



Step 3: Push the Center Button once to enter into the ODS Menu

Step 4: Push either the Right or the Left programming buttons until the display reads **1 HP** or **2 HP**.

1 HP = Single stage heatpump
2 HP = Two stage heatpump



Step 5: Press the Center Button Twice to lock in your selection and return to the main menu.

2. Programming Blower Ramping Speed:

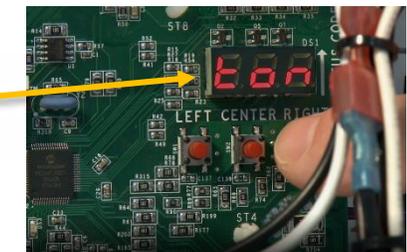
Step 6: Push either the Right or the Left programming buttons until the display reads **CAP**



Step 7: Push the Center Button once to enter into the CAP Menu

Step 8: Push either the Right or the Left programming buttons until the display reads **1** (Ramps up blower to high speed - all units)

Step 9: Press the Center Button Twice to lock in your selection and return to the main menu

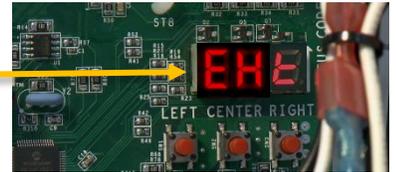


3. Programming Unit Tonnage:

- Step 10: Push either the Right or the Left programming buttons until the **display reads ton**
- Step 11: Push the Center Button once to enter into the **ton** Menu
- Step 12: Push either the Right or the Left programming buttons until the **display reads 2 or 2.5, 3, 3.5, 4, 4.5, 5** (the unit tonnage)
- Step 13: Press the Center Button Twice to lock in your selection and return to the main menu

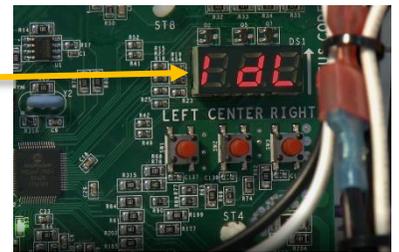
4. Programming Emergency Heat Kit Size:

- Step 14: Push either the Right or the Left programming buttons until the **display reads Eht**
- Step 15: Push the Center Button once to enter into the Eht Menu
- Step 16: Push either the Right or the Left programming buttons until the **display reads 5 or 8, 10, 15, or 20** (the Ht Kit kW size in the A/H)
- Step 17: Press the Center Button Twice to lock in your selection and return to the main menu



5. Lock/Save Programmed Setup:

- Step 18: Push any two buttons at the same time to Save Program & bring the A/H back to IdL for idle mode. **IdL = Final Setup**



The system is now setup and operational.

If more information is needed, please contact Total Green Mfg.
To contact Total Green Technical Support call 419-678-2032.

Notes:
