Tranquility Aluminum Tube Cased Coil (TAC)



Cased Coil for Tranquility Split Series

Installation, Operation & Maintenance Instructions 97B0100N01 Rev.: August 21, 2018

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Model Nomenclature



General Information

CASED COIL DESCRIPTION

ClimateMaster Tranquility Cased Coils are designed for use with ClimateMaster indoor/outdoor split units and are available for vertical upflow or downflow, and horizontal left or horizontal right airflow.

- Constructed of aluminum fins bonded to internally grooved aluminum tubing.
- Coils are tested at the factory with an extensive refrigerant leak check.
- · Coils have sweat refrigerant connections.
- Ideally suited for new installations or add on air conditioning.
- Feature two sets of 3/4" FPT condensate drain connections for ease of connection.
- Coils are AHRI certified for system application with ClimateMaster indoor and outdoor split units.
- Condensate drain pan is constructed of high grade, heat resistant, corrosion free thermal-set material.
- Bi-Directional airflow eliminates the need to switch any internal components from horizontal left to right.
- Unique drain pan design maximizes application flexibility and condensate removal.

Inspection

Upon receipt of the equipment, carefully check the shipment against the bill of lading. Make sure all units have been received. Inspect the packaging of each unit, and inspect each unit for damage. Insure that the carrier makes proper notation of any shortages or damage on all copies of the freight bill and completes a common carrier inspection report. Concealed damage not discovered during unloading must be reported to the carrier within 15 days of receipt of shipment. If not filed within 15 days, the freight company can deny the claim without recourse. Note: It is the responsibility of the purchaser to file all necessary claims with the carrier. Notify your equipment supplier of all damage within fifteen (15) days of shipment.

Storage

Equipment should be stored in its original packaging in a clean, dry area. Store units in an upright position at all times. Stack units a maximum of 3 units high.

Unit Protection

Cover units on the job site with either the original packaging or an equivalent protective covering. Cap the open ends of pipes stored on the job site. In areas where painting, plastering, and/or spraying has not been completed, all due precautions must be taken to avoid physical damage to the units and contamination by foreign material. Physical damage and contamination may prevent proper start-up and may result in costly equipment clean-up.

Examine all pipes, fittings, and valves before installing any of the system components. Remove any dirt or debris found in or on these components.

Pre-Installation

Installation, Operation, and Maintenance instructions are provided with each unit. Horizontal equipment is designed for installation above false ceiling or in a ceiling plenum. Other unit configurations are typically installed in a mechanical room. The installation site chosen should include adequate service clearance around the unit. Before unit start-up, read all manuals and become familiar with the unit and its operation. Thoroughly check the system before operation.

Prepare units for installation as follows:

- 1. Compare the data on the unit nameplate with ordering and shipping information to verify that the correct unit has been shipped.
- 2. Keep the cabinet covered with the original packaging until installation is complete and all plastering, painting, etc. is finished.
- 3. Verify refrigerant tubing is free of kinks or dents and that it does not touch other unit components.

WARNING! 🗚

WARNING! These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in property damage, personal injury or death.

CAUTION!

CAUTION! DO NOT store or install units in corrosive environments or in locations subject to temperature or humidity extremes (e.g., attics, garages, rooftops, etc.). Corrosive conditions and high temperature or humidity can significantly reduce performance, reliability, and service life.

CAUTION! CUT HAZARD - Failure to follow this caution may result in personal injury. Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses and gloves when handling parts and servicing.

Safety

The installation of water source heat pump units and all associated components, parts and accessories which make up the installation shall be in accordance with the regulations of ALL authorities having jurisdiction and MUST conform to all applicable codes. It is the responsibility of the installing contractor to determine and comply with ALL applicable codes and regulations.

Replacement Parts

Any replacement part must be the same as or an approved alternate to the original part supplied. The manufacturer will not be responsible for replacement parts not designed to physically fit or operate within the design parameters the original parts were selected for. When ordering replacement parts, it is necessary to order by part number and include the complete model number and serial number from the coil rating plate. (Parts are available through the local distributor.)

Safety

Warnings, cautions and notices appear throughout this manual. Read these items carefully before attempting any installation, service, or troubleshooting of the equipment.

DANGER: Indicates an immediate hazardous situation, which if not avoided <u>will result in death or serious injury</u>. DANGER labels on unit access panels must be observed.

WARNING: Indicates a potentially hazardous situation, which if not avoided <u>could result in death or serious injury</u>.

CAUTION: Indicates a potentially hazardous situation or an unsafe practice, which if not avoided <u>could result in minor or</u> <u>moderate injury or product or property damage.</u>

NOTICE: Notification of installation, operation or maintenance information, which is <u>important</u>, but which is <u>not hazard-related</u>.

🛦 WARNING! 🛦

WARNING! The EarthPure[®] Application and Service Manual should be read and understood before attempting to service refrigerant circuits with HFC-410A.

WARNING! A

WARNING! To avoid the release of refrigerant into the atmosphere, the refrigerant circuit of this unit must be serviced only by technicians who meet local, state, and federal proficiency requirements.

CAUTION!

CAUTION! To avoid equipment damage, DO NOT use these units as a source of heating or cooling during the construction process. The mechanical components and filters can quickly become clogged with construction dirt and debris, which may cause system damage and void product warranty.

A WARNING! A

WARNING! PROPOSITION 65: This appliance contains fiberglass insulation. Respirable particles of fiberglass are known to the State of California to cause cancer. All manufacturer products meet current Federal OSHA Guidelines for safety. California Proposition 65 warnings are required for certain products, which are not covered by the OSHA standards. California's Proposition 65 requires warnings for products sold in California that contain or produce any of over 600 listed chemicals known to the State of California to cause cancer or birth defects such as fiberglass insulation, lead in brass, and combustion products from natural gas. All "new equipment" shipped for sale in California will have labels stating that the product contains and/or produces Proposition 65 chemicals. Although we have not changed our processes, having the same label on all our products facilitates manufacturing and shipping. We cannot always know "when, or if" products will be sold in the California market. You may receive inquiries from customers about chemicals found in, or produced by, some of our heating and air-conditioning equipment, or found in natural gas used with some of our products. Listed below are those chemicals and substances commonly associated with similar equipment in our industry and other manufacturers. GlassWool (Fiberglass) Insulation

- Carbon Monoxide (CO).
- Formaldehyde
- Benzene

More details are available at the websites for OSHA (Occupational Safety and Health Administration), at www. osha.gov and the State of California's OEHHA (Office of Environmental Health Hazard Assessment), at www. oehha.org. Consumer education is important since the chemicals and substances on the list are found in our daily lives. Most consumers are aware that products present safety and health risks, when improperly used, handled and maintained.

CAUTION! It is recommended that an auxiliary secondary drain pan be installed under units containing evaporator coils that are located in any area of a structure where damage to the building or building contents may occur as a result of an overflow of the coil drain pan or a stoppage in the primary condensate drain piping.

The following warning complies with State of California law, Proposition 65.

WARNING!

WARNING! This product can expose you to chemicals including Carbon Black, which is known to the State of California to cause cancer and Methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Specifications

Wet Coil Static Pressure Drop (Inches W.C.) - Coil Only																
Coil Model	Face Area Ft2 (m2)	Case Width (cm)	600 CFM	700 CFM	800 CFM	900 CFM	1000 CFM	1100 CFM	1200 CFM	1300 CFM	1400 CFM	1500 CFM	1600 CFM	1700 CFM	1800 CFM	1900 CFM
TAC026BM17S	4.56 (0.42)	17.5 (44.5)	0.120	0.157	0.199	0.246										
TAC026BM21S	5.70 (0.53)		0.113	0.145	0.181	0.222										
TAC038BM21S	8.55 (0.79)	21	0.062	0.086	0.112	0.140	0.170	0.202	0.236							
TAC038BM24S	8.55 (0.79)	(53.3)	0.062	0.086	0.112	0.140	0.170	0.202	0.202	0.272	0.309					
TAC049BM21S	8.55 (0.79)		0.062	0.086	0.112	0.140	0.170	0.202	0.202	0.272	0.309	0.349	0.391	0.434	0.480	0.527
TAC049BM24S	8.55 (0.79)	24.5	0.062	0.086	0.112	0.140	0.170	0.202	0.202	0.272	0.309	0.349	0.391	0.434	0.480	
TAC064BM24S	9.98 (0.93)	(62.2)	0.036	0.050	0.065	0.081	0.098	0.117	0.137	0.158	0.180	0.203	0.228	0.254	0.281	

Table 1: Coil Specifications/Airflow Pressure Drop

NOTE: Represents Coil-Only Airflow Ratings

Dimensions

Figure 1: Dimensions



Table 2: Coil Dimensions and Weights

Model	026BM17	026BM21	038BM21	038BM24	049BM21	049BM24	064BM24
Connections - Sweat							
Liquid I.D in	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Suction I.D in	3/4	3/4	7/8	7/8	7/8	7/8	7/8
Cased Coil Dimensions							
A - Width - in [cm]	17 1/2 [44.5]	21 [53.3]	21[53.3]	24 1/2 [62.2]	21 [53.3]	24 1/2 [62.2]	24 1/2 [62.2]
B - Coil Height - in [cm]	14 1/2 [36.8]	17 1/2 [44.5]	25 7/8 [65.7]	25 3/8 [64.5]	25 7/8 [65.7]	25 3/8 [64.5]	30 [76.2]
C- Height - in [cm]	20 [50.8]	20 [50.8]	28 [71.1]	32 [81.3]	28 [71.1]	32 [81.3]	32 [81.3]
Weight			~				
Coil Weight lbs. [kg]	43 [20]	49 [22]	71 [32]	83 [38]	71 [32]	83 [38]	100 [45]
Shipping Weight lbs. [kg]	48 [22]	54 [24]	78 [35]	93 [42]	78 [35]	93 [42]	110 [50]

The Tranquility Cased Coils are designed for upflow, horizontal, and downflow applications. The coils have a dry nitrogen holding charge and are equipped with brazing stub refrigerant connections for easy installation.

The installer should read the installation manual supplied with the compressor section for refrigerant line set sizing, connection procedure, and other important information pertaining to the system installation.

The installer should:

- 1. Make sure that the air delivery of the furnace is adequate enough to handle the recommended CFM and allow for pressure drop across the air coil, filter, and duct work.
- 2. Where precise forming of refrigerant lines is required, a copper tubing bender is recommended for small diameter tubing. One should avoid sharp bends and contact of the refrigerant lines with metal surfaces.
- 3. Refrigerant lines should be protected where they pass through the raw edges of holes.
- 4. Coil must be level or slightly pitched toward drain for proper condensate drainage.
- 5. Seal the openings into the cabinet to reduce risk of condensate blow off from the coil.

Cased Coil Installation

🛦 WARNING! 🛦

WARNING! Electric furnaces may be connected to more than one supply circuit.

The installer should:

- 1. Disconnect all electrical power to the furnace.
- 2. For the install of an cased coil, it might be necessary to fabricate a plate to adapt the coil's cabinet to the furnace or air handler air discharge opening.
- 3. Install the cabinet and level or slightly pitch it as needed to allow proper condensate drainage.
- 4. Seal the enclosure as required minimizing air leakage.
- 5. Connect the refrigerant lines as outlined in the Refrigerant Lines section.

Applications

Tranquility Cased coils can be applied in upflow, downflow, horizontal right and horizontal left applications without modifications. For horizontal applications, installation of an auxiliary/secondary drain pan is required. For coils that are two sizes larger than the furnace, for example, a 21" [53.3 cm] wide coil on a 14" [35.6 cm] furnace, a tapered adaptor with a minimum height of 6" [15.2 cm] is required to evenly distribute airflow. See Figure 3. For coils that are one size larger than the furnace; for example a 21" [53.3 cm] wide coil on a 171/2" [44.5 cm] furnace, seal the gap between the two units with sheet metal. See figure 4.

CAUTION!

CAUTION! For horizontal applications, the horizontal drain pan must be located under the indoor coil. Failure to place the pan under the coil can result in property damage.

Table 3: Coil Application

Coil	Furnace Width [cm]					
Model	Oil*	Gas				
TAC-026	24 [52 2]	17 1⁄2 [44.5]				
TAC-020	21 [53.3]	14 [35.6]				
TAC-026	21 [53.3]	21 [53.3]				
		17 1⁄2 [44.5]				
TAC-038		0440 (00.01				
TAC-049	24 1⁄2 [62.2]	24 1⁄2 [62.2]				
TAC-064		21 [53.3]				

*Due to the proximity of the drain pan to the high temperature oil furnace drum, horizontal left application is NOT permitted on oil furnaces.

Figure 2: Coil Installation Options







IMPORTANT: Coil must be installed on the supply airflow side of a gas or oil furnace.



Figure 3: Installation of coil matched with a furnace two sizes smaller

Figure 4: Installation of coil matched with a furnace of smaller size



CAUTION! HFC-410A systems operate at higher pressures than R-22 systems. Be certain that service equipment (gauges, tools, etc.) is rated for HFC-410A. Some R-22 service equipment may not be acceptable.

CAUTION!

CAUTION! Installation of a factory supplied liquid line bi-directional filter drier is required. Never install a suction line filter in the liquid line.

Line Set Installation

Figure 9 illustrates a typical installation of an air handler or cased coil matched to an indoor compressor section. Lineset lengths should be kept to a minimum and should always be installed with care to avoid kinking. Line sets are limited to 60 feet [18 meters] in length (one way). Line sets over 60 feet [18 meters] void the equipment warranty. If the line set is kinked or distorted, and it cannot be formed back into its original shape, the damaged portion of the line should be replaced. A restricted line set will effect the performance of the system.

ClimateMaster Split units are shipped with a filter drier (loose) inside the cabinet that must be installed in the liquid line at the line set.

All brazing should be performed using nitrogen circulating at 2-3 psi [13.8-20.7 kPa] to prevent oxidation inside the tubing. All linesets should be insulated with a minimum of 1/2" [13mm] thick closed cell insulation. All insulation tubing should be sealed using a UV resistant paint or covering to prevent deterioration from sunlight.

See compressor section IOM for refrigerant charge information.

When passing refrigerant lines through a wall, seal opening with silicon-based caulk. Avoid direct contact with water pipes, duct work, floor joists, wall studs, floors or other structural components that could transmit compressor vibration. Do not suspend refrigerant tubing from joists with rigid straps. Do not attach line set to the wall. When necessary, use hanger straps with isolation sleeves to minimize transmission of line set vibration to the structure.

Installing the Lineset at the Compressor Section Braze the line set to the service valve stubs as shown in Figure 5. Nitrogen should be circulated through the system at 2-3 psi [13.8-20.7 kPa] to prevent oxidation contamination. Use a low silver phos-copper braze alloy on all brazed connections. Compressor section is shipped with a factory charge. Therefore, service valves should not be opened until the line set has been leak tested, purged and evacuated.

Installing the Indoor Coil and Lineset

Figure 6 shows the installation of the lineset and TXV to a typical indoor coil. An indoor coil or air handler (fan coil) with a TXV is required. Fasten the copper line set to the coil. Nitrogen should be circulated through the system at 2-3 psi **[13.8-20.7 kPa]** to prevent oxidation inside the refrigerant tubing. Use a low silver phos-copper braze alloy on all brazed connections.

Figure 5: Braze Instructions





TES Compression Section



TEP Compression Section

Figure 6: Air Coil Connection



Sensing Bulb

IMPORTANT: DO NOT perform any brazing with the TXV bulb attached to any line. After brazing operations have been completed, clamp the TXV bulb securely on the suction line at the 10 to 2 o'clock position with the strap provided in the parts bag. Insulate the TXV sensing bulb and suction line with the provided pressure sensitive insulation and secure with provided wire ties.

IMPORTANT: TXV sensing bulb should be located on a horizontal section of copper suction line, just outside of coil box. The copper sensing bulb must never be placed on any aluminum tube as this will result in galvanic corrosion and eventual failure of the aluminum tube.

Add-On Heat Pump Applications

The indoor coil should be located on the supply side of the furnace to avoid condensation damage to the furnace heat exchanger for add-on heat pump applications. A high temperature limit switch should be installed as shown in Figure 9 just upstream of the coil to de-energize the compressor any time the furnace is energized to avoid blowing hot air directly into the coil, elevating refrigerant pressures during operation. The heat pump will trip out on high pressure lockout without some method of disengaging the compressor during furnace operation. Alternatively, some thermostats with "dual fuel" mode will automatically deenergize the compressor when second stage (backup) heat is required.

Air Coil

To obtain maximum performance of a newly manufactured air coil it should be cleaned before start-up. A 10% solution of dishwasher detergent and water is recommended for both sides of the coil. A thorough water rinse should follow.

*An LT2 (low temperature air coil protection) sensor is available for field installation. Order sensor kit number S17S0031N12.

Evacuation

LEAK TESTING - The refrigeration line set must be pressurized and checked for leaks before evacuating and charging the unit. To pressurize the line set, attach refrigerant gauges to the service ports and add an inert gas (nitrogen or dry carbon dioxide) until pressure reaches 60-90 psig [413-620 kPa]. Never use oxygen or acetylene to pressure test. Use a good quality bubble solution to detect leaks on all connections made in the field. Check the service valve ports and stem for leaks. If a leak is found, repair it and repeat the above steps. For safety reasons do not pressurize system above 150 psig [1034 kPa]. System is now ready for evacuation and charging.

Condensate Drain Tubing

Consult local codes or ordinances for specific requirements. **IMPORTANT:** When making drain fitting connections to the drain pan, use a thin layer of Teflon paste, silicone or Teflon tape and install hand tight.

IMPORTANT: When making drain fitting connections to drain pan, do not overtighten. Overtightening fittings can split pipe connections on the drain pan.

- Install drain lines so they do not block service access to front of the unit. Minimum clearance of 24 inches [61 cm] is recommended for filter, coil or blower removal and service access.
- Make sure unit is level or pitched slightly toward primary drain connection so that water will drain completely from the pan. (See Figure 7.)
- Do not reduce drain line size less than connection size provided on condensate drain pan.
- All drain lines must be pitched downward away from the unit a minimum of 1/8" per foot [11 mm per m] of line to ensure proper drainage.
- Do not connect condensate drain line to a closed or open sewer pipe. Run condensate to an open drain or outdoors.
- The drain line should be insulated where necessary to prevent sweating and damage due to condensate forming on the outside surface of the line.

- Make provisions for disconnecting and cleaning of the primary drain line should it become necessary. Install condensate trap at each unit with the top of the trap positioned below the unit condensate drain connection as shown in Figure 7. Design the depth of the trap (water-seal) based upon the amount of ESP capability of the blower (where 2 inches [51mm] of ESP capability requires 2 inches [51mm] of trap depth). As a general rule, 1-1/2 inch [38mm] trap depth is the minimum.
- Always vent the condensate line when dirt or air can collect in the line or a long horizontal drain line is required. Also vent when large units are working against higher external static pressure than other units connected to the same condensate main since this may cause poor drainage for all units on the line. WHEN A VENT IS INSTALLED IN THE DRAIN LINE, IT MUST BE LOCATED AFTER THE TRAP IN THE DIRECTION OF THE CONDENSATE FLOW.
- Auxiliary drain line should be run to a place where it will be noticeable if it becomes operational. Occupant should be warned that a problem exists if water should begin running from the auxiliary drain line.
- Plug the unused drain connection with the plugs provided in the parts bag, using a thin layer of Teflon paste, silicone or Teflon tape to form a water tight seal.
- Test condensate drain pan and drain line after installation is complete. Pour water into drain pan, enough to fill drain trap and line. Check to make sure drain pan is draining completely, no leaks are found in drain line fittings, and water is draining from the termination of the primary drain line.

CAUTION! It is recommended that an auxiliary/secondary drain pan be installed under units containing evaporator coils that are located in any area of a structure where damage to the building or building contents may occur as a result of an overflow of the coil drain pan or a stoppage in the primary condensate drain piping.

Figure 7: Condensate drain trap/vent



UNIT MUST BE LEVEL OR SLIGHTLY PITCHED TOWARD DRAIN CONNECTION

Duct Flanges

Field-installed duct flanges (4 pieces) are shipped with units. Install duct flanges as needed on top or bottom of the coil casing. (See Figure 8.)

Figure 8: Field-installed duct flanges



Charging the System See Compressor Section IOM for charging information.

Figure 9: Typical Split/Add-on Coil Fossil Fuel Furnace Installation



MAINTENANCE

WARNING!

WARNING! These instructions are intended as an aid to qualified licensed service personnel for proper installation, adjustment and operation of this unit. Read these instructions thoroughly before attempting installation or operation. Failure to follow these instructions may result in improper installation, adjustment, service or maintenance possibly resulting in property damage, personal injury or death.

For continuing high performance and to minimize possible equipment failure, it is essential that annual maintenance be performed on this equipment. Consult your local dealer as to the availability of a maintenance contract.

Air Filter

Check the system filter every ninety days or as often as found to be necessary and if obstructed, clean or replace at once. **IMPORTANT:** Do not operate the system without a filter in place.

Indoor Coil - Drain Pipe - Drain Line

Inspect the indoor coil once each year for cleanliness and clean as necessary. In some cases, it may be necessary to remove the filter and check the return side of the coil with a mirror and flashlight.

IMPORTANT: Do not use caustic household drain cleaners or bleach in the condensate pan or near the indoor coil. Drain cleaners will quickly damage the indoor coil.

Warranty



Revision History

Date	Page #	Description
August 21, 2018	4	Added warning
November 5, 2015	All	Updated to Aluminum Tube
April 23, 2012	3, 7	TAC 026-B Dimensions Corrected
July 6, 2011	3	Decoder Updated
April 22, 2010	All	First Published





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