

Installation Instructions

Low Ambient Control

Foundation™ Packaged Rooftop Units

3 to 5 Tons

Model Number:
BAYLOAM340*

Used With:
E/GB*036-060
E/GD*036-060

SAFETY WARNING

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

August 2024

ACC-SVN270B-EN

Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

- ⚠ WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
- ⚠ CAUTION** Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
- NOTICE** Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

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

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠ WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring **MUST** be performed by qualified personnel. Improperly installed and grounded field wiring poses **FIRE** and **ELECTROCUTION** hazards. To avoid these hazards, you **MUST** follow requirements for field wiring installation and grounding as described in **NEC** and your local/state/national electrical codes.

⚠ WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- Before installing/servicing this unit, technicians **MUST** put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). **ALWAYS** refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, **ALWAYS** refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.
- If there is a risk of energized electrical contact, arc, or flash, technicians **MUST** put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, **PRIOR** to servicing the unit. **NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠ WARNING

Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.
- Non-Trane personnel should always follow local regulations.

⚠ WARNING

R-454B Flammable A2L Refrigerant!

Failure to use proper equipment or components as described below could result in equipment failure, and possibly fire, which could result in death, serious injury, or equipment damage.

The equipment described in this manual uses R-454B refrigerant which is flammable (A2L). Use ONLY R-454B rated service equipment and components. For specific handling concerns with R-454B, contact your local representative.

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Inspection

1. Check carefully for shipping damage. If any damage is found, report it immediately, and file a claim against the transportation company. Replace damaged parts with authorized parts only.
2. Compare the order number on the shipping label with the accessory identification information on the ordering and shipping documents to verify that the correct accessory has been received.

Parts List

Table 1. Parts list

Qty	Description
1	Low Ambient Control Module
1	LPCO Bypass Timer
1	Temperature Sensor
1	Pressure Transducer
1	Pressure Tab Tee
2	Wire Harnesses
4	Screws
4	Wire Ties
1	Gasket
1	Installation Instructions
1	Installed Accessory Label

Installation

General

Table 2. Low ambient controller ratings

Volts, AC	208, 240, 380, 415, 480, 600
Control Voltage	18–30 Vac
Frequency	50-60 Hz
Operating Temperature	-40°F + 140°F (-40°C to 60°C)
Full Load Amps	10 Amps
Transducer Pressure Control Range	0–500 psi

Controller

⚠ WARNING

Hazardous Voltage w/Capacitors!

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/ tagout procedures to ensure the power cannot be inadvertently energized. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

1. Disconnect all power from the unit.
2. Remove the compressor and control box access panel(s).
3. See [Figure 1, p. 6](#) for mounting location and position of the controller inside the unit.
4. Mount the controller using two screws. See [Figure 1, p. 6](#) detail A.
5. Mount the bypass timer. See [Figure 1, p. 6](#) detail B.
6. Mount the ambient air sensor below control box to measure ambient temperatures. See [Figure 2, p. 6](#).

Pressure Transducer

1. Install the supplied tee on the high pressure service port. See [Figure 3, p. 7](#).
2. Remove the cap nut from the high pressure service port.
3. Install the pressure sensor on one of the tee ports. See [Figure 4, p. 7](#).
4. Place the tee flare nut with the valve core depressor on the high pressure tap. See [Figure 5, p. 7](#).
5. Tighten flare nut securely to the high pressure service port and check for leaks.
6. Place cap nut on the open port tee.
7. Route wires along with existing sensor wires into the main control box. Refer to the wire harness installation section for proper wire routing path back to the controller mounting location.
8. Connect wires to the appropriate controller terminals. See schematic.

Installation

Figure 1. 3 to 5 ton unit control box

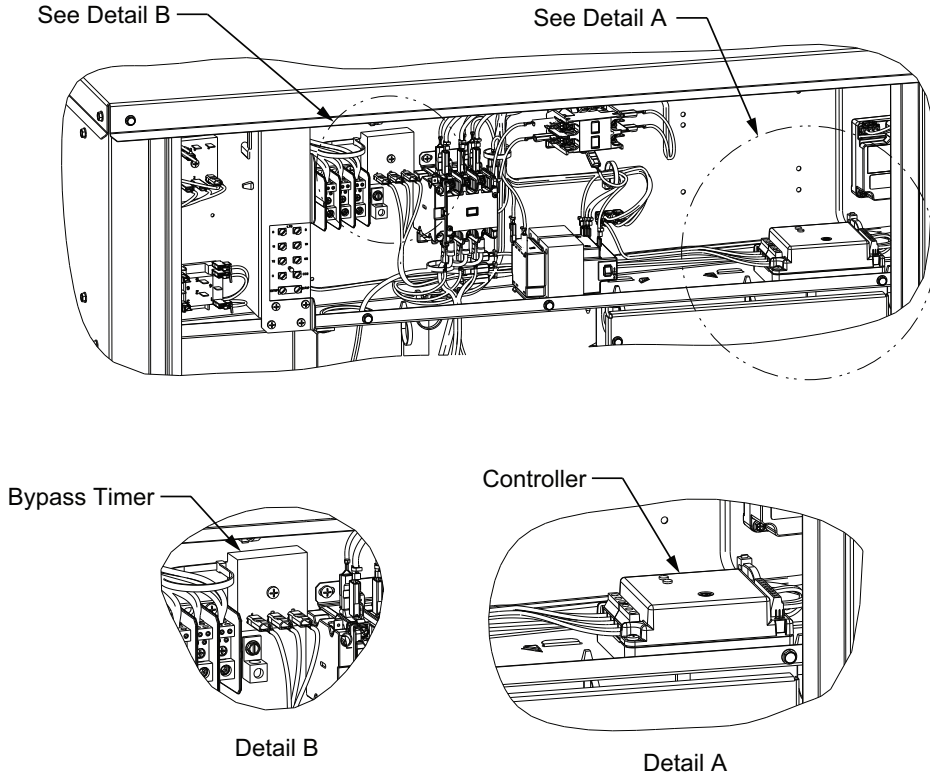


Figure 2. Sensors location

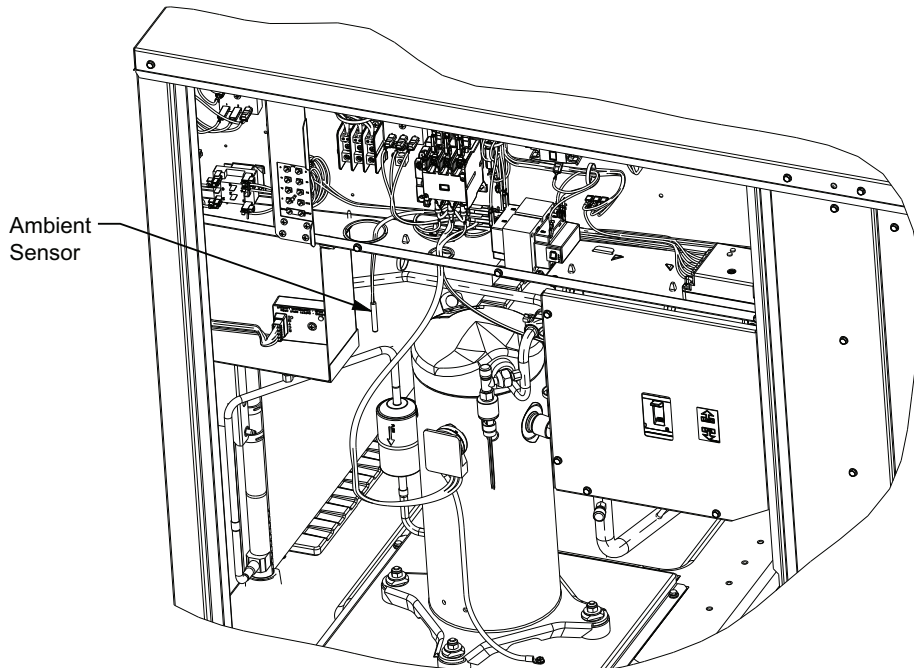


Figure 3. High pressure service port

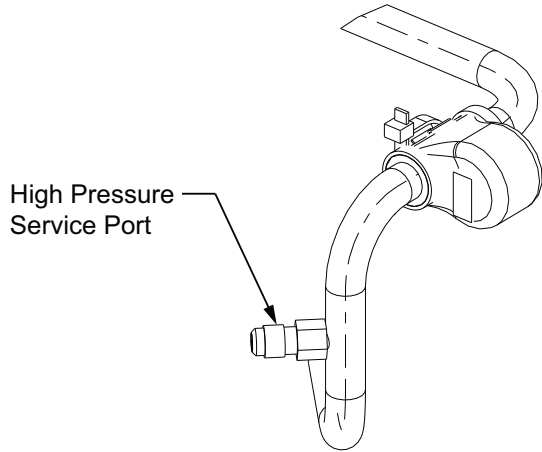


Figure 4. Pressure sensor

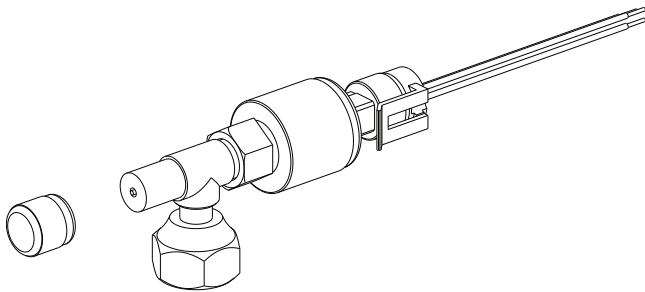
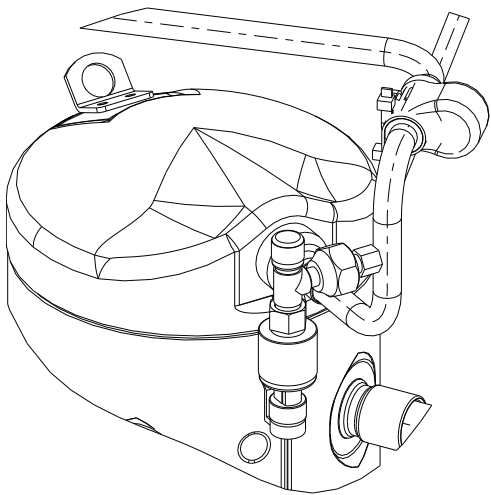


Figure 5. Flare nut with valve core depressor



Control Box Wiring

⚠ WARNING

Hazardous Voltage w/Capacitors!

Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury. Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/ tagout procedures to ensure the power cannot be inadvertently energized. Verify with a CAT III or IV voltmeter rated per NFPA 70E that all capacitors have discharged.

1. The unit schematic is on the compressor access panel. Follow the unit schematic to make connections in the unit control box.
 - a. Use the control side of the main harness from the kit to connect the low ambient control connections between C, Y1, Y2 and LVC, LTB-Y1,LTB-Y2.
 - b. Route the ambient temperature sensor through the bottom of the control box to hang near the compressor section. See [Figure 2, p. 6](#).
 - c. Install the low pressure bypass timer control harness. See the wiring diagram in [Figure 8, p. 9](#).
 - d. If needed, cut wire ties for proper wire routing.
2. Outdoor motor power harness.
 - a. Disconnect outdoor motor (ODM) from compressor contactor, CC1.
 - b. Use the power wires from the kit main harness to connect to the outdoor motor.

Note: See [Figure 7, p. 9](#) for installing strip lead connections into the controller.
 - c. Connect the power harness from low ambient controller with outdoor motor pigtail and compressor contactor, CC1.
3. Finish wiring installation.
 - a. Using wire ties, bundle and dress any excess wires.
 - b. After the settings have been adjusted (see [“Controller Settings,” p. 9](#)), reinstall the compressor, control box access panels, and secure with screws previously removed.
 - c. Re-connect all power to the unit. Refer to troubleshooting guide, [Table 3, p. 11](#), if needed.

Figure 6. Low ambient control wiring diagram

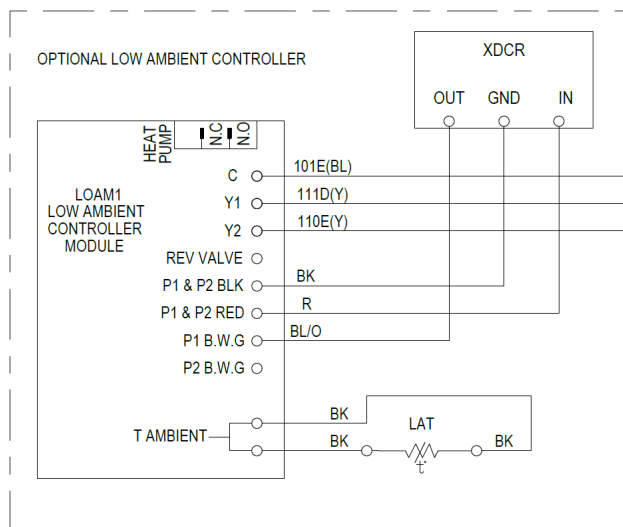


Figure 7. Low ambient power wiring diagram

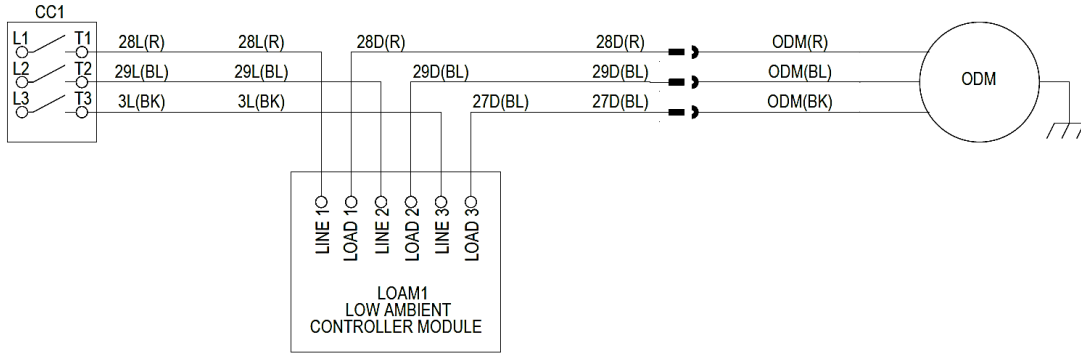
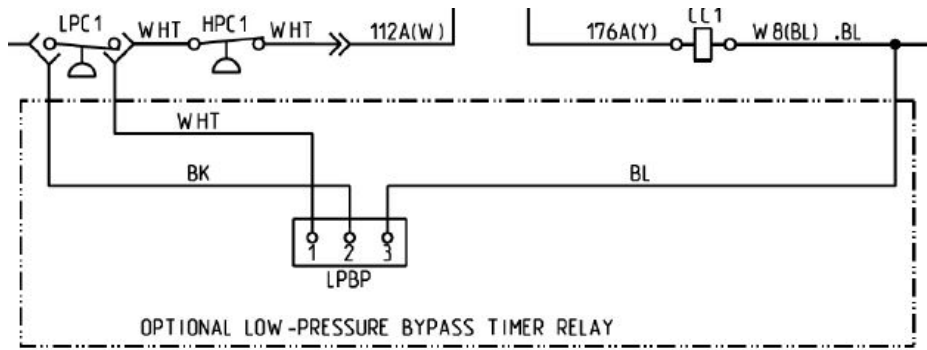


Figure 8. Optional low-pressure bypass timer delay diagram

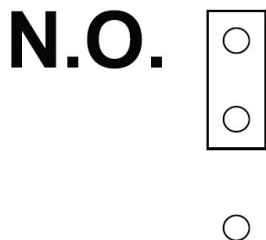


Controller Settings

For non-heat pump applications:

- Heat pump select jumper must be in the default (N.O.) position.
- Heat pump terminals must be left unconnected. See [Figure 9, p. 9](#).

Figure 9. Jumper position



Controller Operation

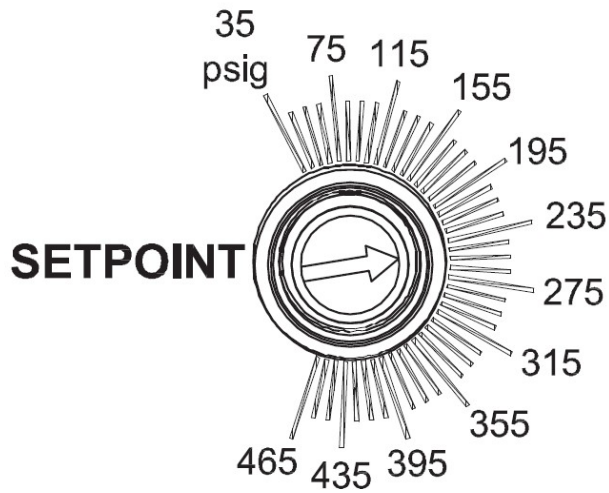
- Use to maintain head pressure within an acceptable range when ambient temperature falls below 50°F.
- To read discharge pressures from the refrigeration circuit.
- Turns on and off the outdoor fan motor to maintain discharge pressure at the selected setpoint.

Setting the Pressure Setpoint

Set the pressure setpoint to the recommended value of 245 psig, see [Figure 10, p. 10](#).

For ambient temperatures lower than 50°F, the controller will maintain the highest of the two circuits discharge pressures between 15 psig above and 15 psig below the dialed pressure setpoint.

Figure 10. Pressure setpoint



Troubleshooting

Before leaving the installation, confirm correct operation through the desired pressure range.

Table 3. Troubleshooting guide

Problem	Possible Cause	Possible Solution
No fan operation	No 24 volt control voltage	<ul style="list-style-type: none"> Check for 24 Vac at control and verify correct wiring. If wired correctly, check voltage across the transformer.
	No line voltage	<ul style="list-style-type: none"> Check voltage across the black and purple OD motor wires. If no line voltage is present, verify all wiring is correct.
Improper fan operation	Heat pump jumper not configured correctly	Reference the unit manual or wiring diagram and verify the heat pump jumper is configured correctly.
	Control is not wired correctly	<ul style="list-style-type: none"> Reference wiring diagrams. Confirm the 24 Vac power supply is connected in-phase with the motor power supply.
No fan modulation	No need to modulate the fan	If pressure is equal to or greater than the head pressure control setpoint, the fan will be operating at full speed.
	Mis-wired	Verify the 24 Vac signal is wired up correctly inside the controller.
Erratic fan operation	Control is not wired correctly	See wiring diagrams.
	Dirty or blocked condenser coil	Clean condenser coil.
Fan motor is cycling on thermal overload	Dirty or blocked condenser coil	Clean condenser coil.
	Wrong motor for fan speed control application	Verify new motor was installed. Replace with motor approved for fan speed control application.
Unit fails to start	Incorrect/No voltage present	<ul style="list-style-type: none"> Using an AC voltmeter, measure the voltage between the 24 Vac terminals. It should read approximately 24 volts. Measure the line voltage between LINE1 and LINE2 to confirm line voltage is present.
Fuse is blown and/or signs of damage on the unit	Mis-wired	The unit has been mis-wired and may be permanently damaged.

Table 4. Pressure vs. voltage

Pressure (psig)	Voltage (Vdc)
0	0.5
50	0.9
100	1.3
150	1.7
200	2.1
250	2.5
300	2.9
350	3.3
400	3.7
450	4.1
500	4.5

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