

*Liebert® Air Economizer™ for Liebert DS™ and Liebert CW™
User Manual*

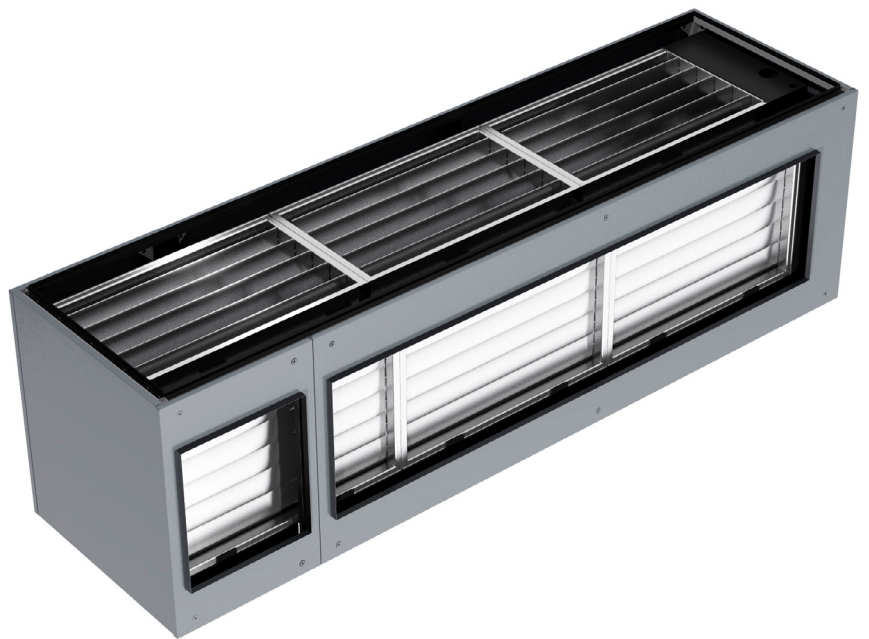


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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

Before beginning the installation of the Liebert Air Economizer, read all instructions, verify that all the parts are included, and check the nameplate to be sure the Liebert Air Economizer voltage matches available utility power.

Follow all local and national codes.



WARNING

Arc flash and electric shock hazard. Disconnect all local and remote electric power supplies, verify with a voltmeter that power is Off and wear protective equipment per NFPA 70E before working within the electric control enclosure. Failure to comply can cause injury or death.

Customer must provide earth ground to unit per NEC, CEC and local codes as applicable.

Before proceeding with installation, read all instructions, verify that all the parts are included and check the nameplate to be sure the voltage matches available utility power.

The Liebert iCOM[®] microprocessor does not isolate power from the unit, even in the “Unit Off” mode. Some internal components require and receive power even during the “Unit Off” mode of Liebert iCOM control.

The line side of the optional, factory-installed disconnect switch contains live hazardous voltage power even in the Off position.

The only way to ensure that there is NO voltage inside the unit is to install and open a remote disconnect switch and check the internal power with a voltmeter. Refer to unit electrical schematic.

Follow all local codes.



WARNING

Risk of top-heavy unit falling over. Improper handling can cause equipment damage, injury or death.

Read all of the following instructions before attempting to move, lift, remove packaging from or preparing unit for installation.



WARNING

Risk of sharp bands under tension. Can cause personal injury.

The bands securing the Liebert Air Economizer to the skid are under extreme tension. Only properly trained and qualified personnel wearing appropriate safety headgear, gloves, shoes and glasses should attempt to remove packaging from this unit.



WARNING

Risk of sharp edges, splinters and exposed fasteners. Can cause personal injury.

Only properly trained and qualified personnel wearing appropriate safety headgear, gloves, shoes and glasses should attempt to move, lift, remove packaging from or prepare this unit for installation.



WARNING

Risk of floor collapse. Can cause building and equipment damage, serious injury or death.

Verify that the floor is structurally strong enough to support the cooling unit and the Liebert Air Economizer. If a fork lift is to be used for moving and lifting, verify that the floor can support the weight of the forklift, operator and the primary cooling unit with the Liebert Air Economizer.



NOTE

This document is to be used together with site-specific documentation and documentation for other parts of the system (heat rejection devices and cooling modules).

**NOTE**

Before any action that could cause a disturbance in the cooling system's function is begun, the facility manager **MUST** be informed. In addition, after the action is taken and the work is finished, the facility manager **MUST** be informed.

NOTICE

Risk of permanently fastening removable front and rear unit panels of the cooling unit and Liebert Air Economizer to each other. Can cause equipment damage and render the front and rear panels not easily removable.

Do not drill or screw into the front or rear of either the Liebert Air Economizer or the Liebert CW. The units should be connected using screws only on their left and right sides.

1.0 PRODUCT DESCRIPTION

1.1 General Product Information

The Liebert Air Economizer is an option for Liebert DS™ downflow units and Liebert CW™ chilled water downflow units. The Liebert Air Economizer uses cool outdoor air in mild climates to condition indoor spaces. It is functional only on cooling units with Liebert iCOM® controls that have been factory-wired and configured to accommodate the Liebert Air Economizer.

The Liebert Air Economizer is supplied with electrical wiring for connection to the cooling unit, outdoor air sensors, return air sensors and a temperature-and-humidity-sensing unit.

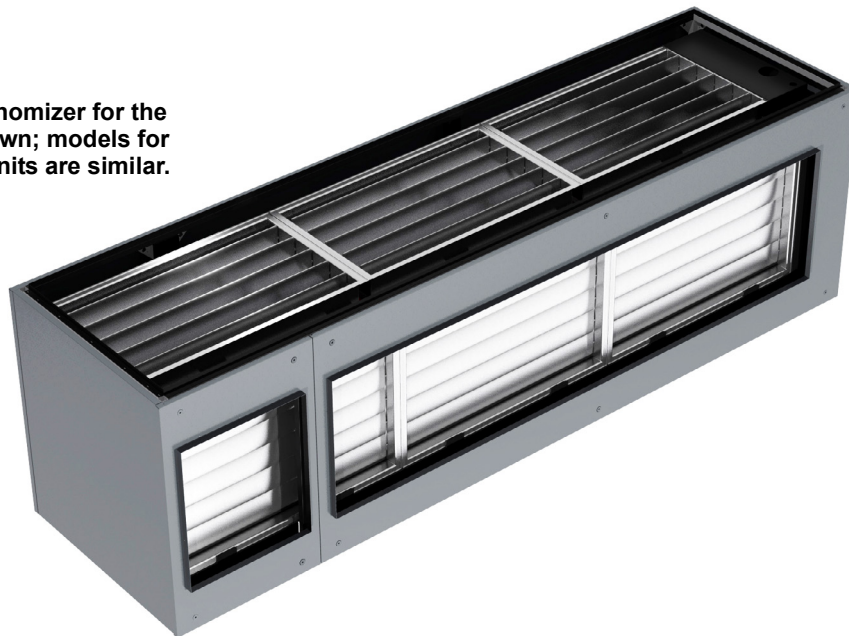
Primary cooling units built since February 2012 have software installed at the factory to permit the unit to control the Liebert Air Economizer (PA2.00.13R and later). Older versions of the software will not offer all the features in this manual; Emerson recommends updating the Liebert iCOM's software to obtain the new features. Contact your Emerson representative about determining the software installed on a Liebert iCOM or to obtain newer software.

If retrofitting older primary cooling units, ensure that the firmware includes the Liebert Air Economizer controls.

Emerson does not recommend installing the Liebert Air Economizer on units with standard scroll or two-step semi-hermetic compressors. For assistance in determining compatibility, contact your local Emerson representative at 1-800-LIEBERT (543-2378).

Figure 1 Liebert Air Economizer

Liebert Air Economizer for the Liebert CW shown; models for other cooling units are similar.



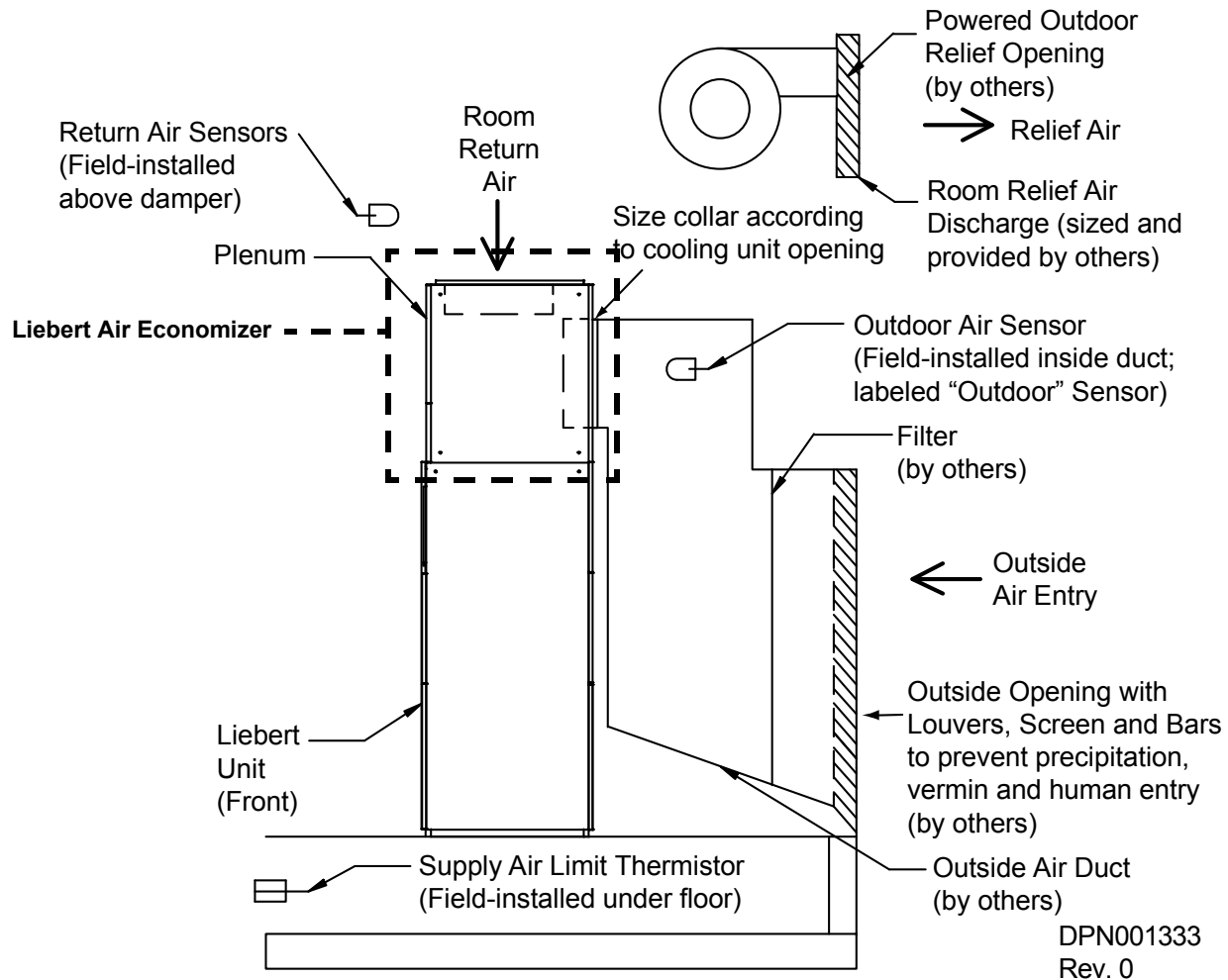
1.1.1 Customer-Supplied Equipment and Ductwork

Installation and operation requires outside-air entry ductwork with louvers, screening and filtration to prevent intrusion of precipitation, particulates, vermin and unauthorized entry (see **Figure 2**).

Proper installation also requires a customer-provided powered relief-air discharge to rid the structure of the outside air drawn in for cooling. The relief-air discharge must be equivalent to the airflow of the total of all cooling systems equipped with the Liebert Air Economizer.

A flange is provided to attach the Liebert Air Economizer to the outdoor air duct **Figures 5, 4 and 7**.

Figure 2 Liebert Air Economizer system diagram



1.2 Equipment Inspection

When the unit is delivered, inspect all items for visible and concealed damage. Report any damage to the carrier immediately and file a damage claim. Send a copy of the damage claim to Emerson Network Power or to your sales representative.

1.3 Equipment Handling



WARNING

Risk of top-heavy unit falling over. Improper handling can cause equipment damage, injury or death.

Read all of the following instructions before attempting to move, lift, remove packaging from or preparing unit for installation.



WARNING

Risk of sharp edges, splinters and exposed fasteners. Can cause personal injury.

Only properly trained and qualified personnel wearing appropriate safety headgear, gloves, shoes and glasses should attempt to move, lift, remove packaging from or prepare this unit for installation.



WARNING

Risk of floor collapse. Can cause building and equipment damage, serious injury or death.

Verify that the floor is structurally strong enough to support the cooling unit and the Liebert Air Economizer. If a fork lift is to be used for moving and lifting, verify that the floor can support the weight of the forklift, operator and the primary cooling unit with the Liebert Air Economizer.

1.3.1 Handling the Liebert Air Economizer With Skid

- Always keep the unit upright, indoors and protected from damage.
- If possible, transport the unit using a pallet jack or forklift.
- Personnel should be properly certified and trained to move and rig equipment.
- If using a forklift, make sure that the forks (if adjustable) are spread to the widest allowable distance that will fit under the skid.
- When moving the skidded Liebert Air Economizer with a forklift, do not lift the unit any higher than 6" (152mm). If circumstances require the unit to be lifted higher than 6" (152mm), all personnel not directly involved in raising the unit must be no closer than 20 feet (5m) from the lift point of the unit.

1.3.2 Moving the Liebert Air Economizer With a Forklift

1. Remove the exterior packaging.
2. Align forklift with either the front or rear of the unit. Ensure that the forks are locked at the widest position that will fit under skid.
3. Drive the forklift forward, sliding the forks under the base of the unit.
4. Move the Liebert Air Economizer as close to its installation location as possible.

1.4 Unpacking the Liebert Air Economizer



WARNING

Risk of improper handling. Can cause equipment damage, injury or death.

Read all of the following instructions before attempting to move, lift, remove packaging from, or preparing unit for installation.



WARNING

Risk of sharp bands under tension. Can cause personal injury.

The bands securing the Liebert Air Economizer to the skid are under extreme tension. Only properly trained and qualified personnel wearing appropriate safety headgear, gloves, shoes and glasses should attempt to remove packaging from this unit.

Save all recyclable materials for reuse. Dispose of any non-recyclable materials properly.

1. Place the unit near its installation location.
2. Remove the exterior stretch wrap from the Liebert Air Economizer.
3. Cut the bands securing the unit to its skid.

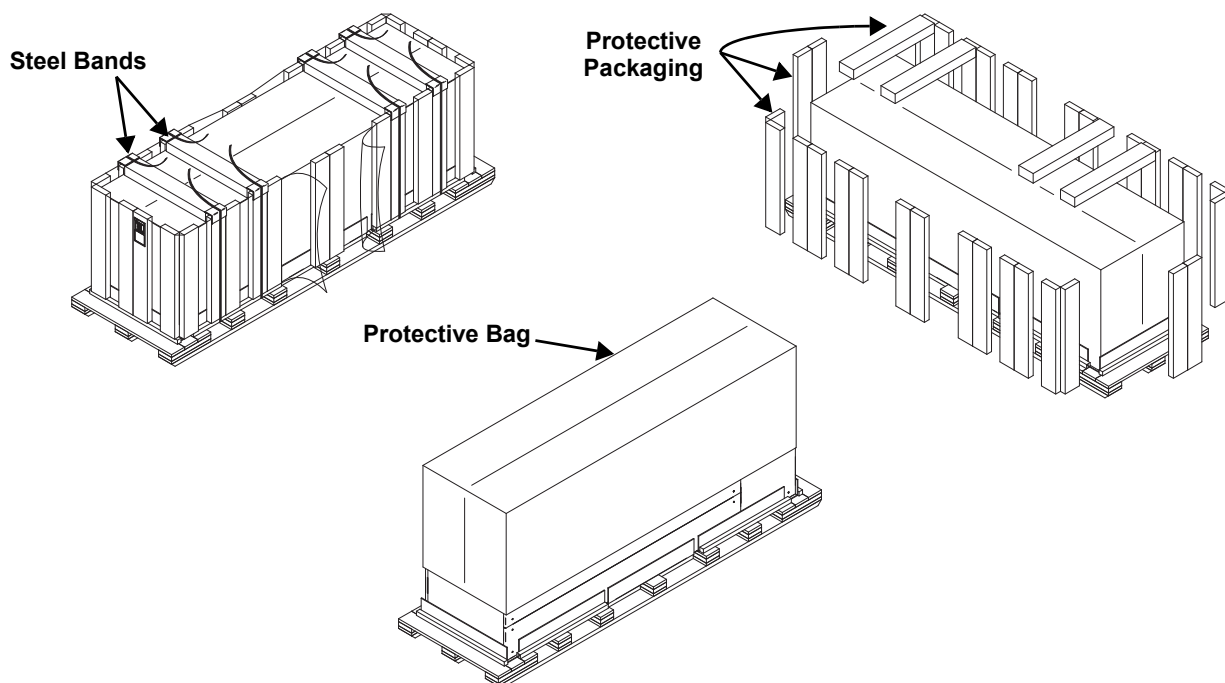


NOTE

When the steel bands are removed, the unit is no longer secured to the skid.

4. Remove the corner and side packaging planks from the unit, exposing the bag over the unit.
5. Remove the plastic bag from the unit. The bag may be left in place if the unit will not be installed immediately.

Figure 3 Removing bands, packaging



6. Remove all 2" x 2" perimeter boards.
7. Remove all of the panels from the unit using a 7/32" Allen wrench.



NOTE

Place the panels where they will not be damaged.

Rear panels may be left on the Liebert Air Economizer, depending on whether there is adequate space available for installation.

2.0 INSTALLATION

Install the Liebert Air Economizer in accordance with the instructions in this manual and site specific documentation.



WARNING

Risk of heavy unit falling. Can cause equipment damage, personal injury and death.

The Liebert Air Economizer is heavy. The heaviest unit weighs more than 480lb. (218kg) without its exterior panels. Verify that all lifting and supporting mechanisms and methods are adequate for the weight of the Liebert Air Economizer being installed. See the documentation included with the unit.

When raising the Liebert Air Economizer, secure it to a sufficiently strong hoist or other lifting mechanism with straps, slings and or belts for safety to prevent it from falling. Spreader bars may be required with some lifting or securing methods to prevent damaging the Liebert Air Economizer.

2.1 General Considerations

Emerson Network Power recommends installing the cooling unit to be equipped with the Liebert Air Economizer, then installing the Liebert Air Economizer and then installing the ductwork.

The ductwork to the outside must be constructed to mate with the outside air intake on the rear of the Liebert Air Economizer. For dimensions and specifications, see **Figures 5, 4 and 7** and **Tables 1 and 2**.

2.2 Install the Liebert Air Economizer—Preliminary Steps

1. Remove the exterior panels from the Liebert Air Economizer to lighten it and to gain access to the unit's frame.
2. Attach safety straps, chains, slings or belts to the Liebert Air Economizer's frame. At least two sets of hooks and straps or chains should be used.
3. Attach the hoist or other lifting mechanism to the Liebert Air Economizer.
4. Raise the Liebert Air Economizer and position it on the cooling unit and secure the units as described in either **2.2.1 - Position the Liebert Air Economizer over a Liebert CW™** or **2.2.3 - Attach the Liebert Air Economizer to a Liebert CW146/181 or Liebert DS028-105**.
Keep lifting unit in place until the Liebert Air Economizer is secured.

2.2.1 Position the Liebert Air Economizer over a Liebert CW™

The Liebert CW has flanges to help position and attach the Liebert Air Economizer.

1. Fit the Liebert Air Economizer over the flanges on either end of the Liebert CW.
2. Fit the Liebert Air Economizer inside the flange on the rear of the cooling unit.

2.2.2 Secure the Liebert Air Economizer to the Liebert CW™—CW026-114

The Liebert Air Economizer must be attached to the cooling unit to prevent movement. Use field-supplied, sheet metal screws with blunt tips to connect the units on each end.

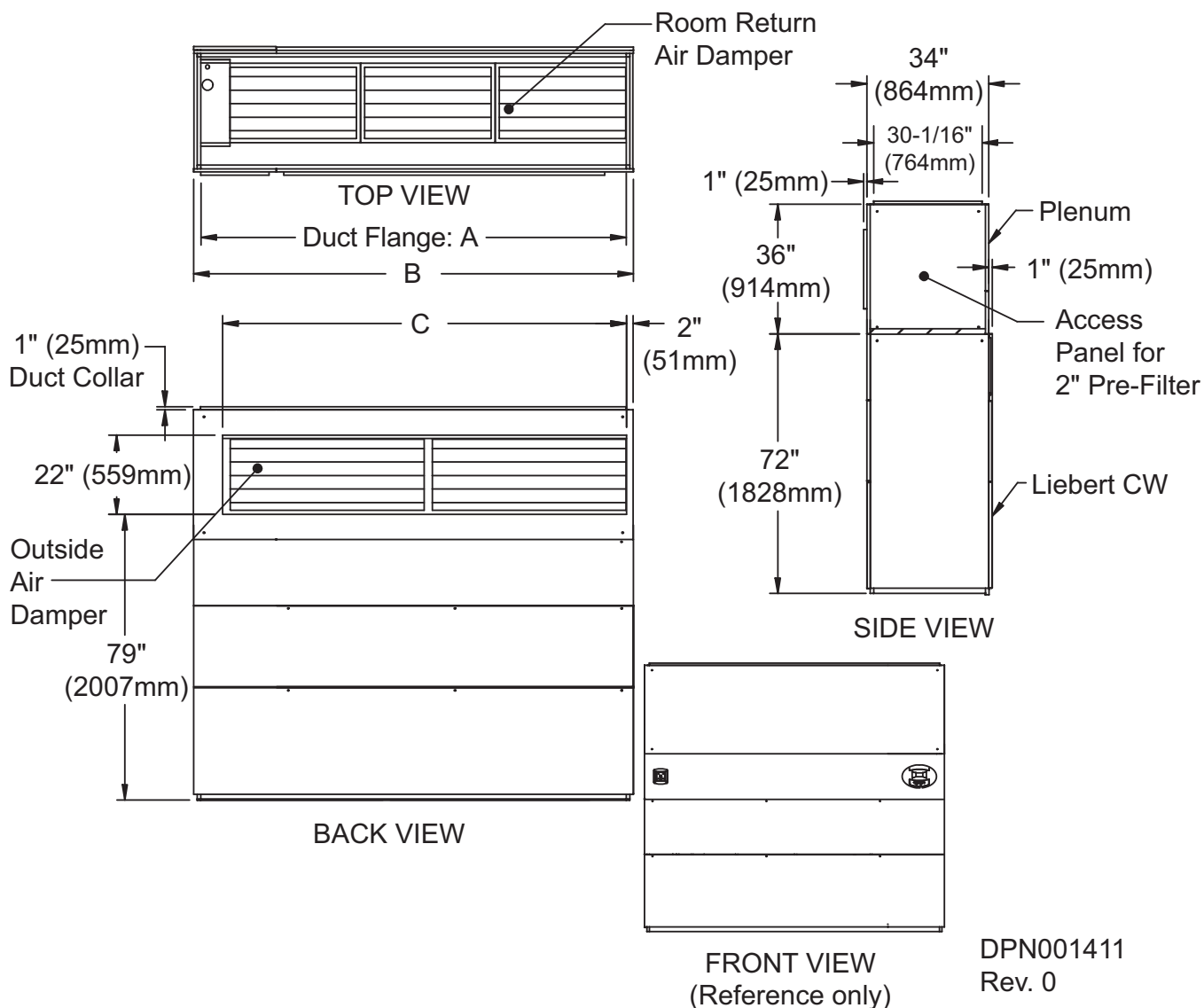
NOTICE

Risk of permanently fastening removable front and rear unit panels of the cooling unit and Liebert Air Economizer to each other. Can cause equipment damage and render the front and rear panels not easily removable.

Do not drill or screw into the front or rear of either the Liebert Air Economizer or the Liebert CW. The units should be connected using screws only on their left and right sides.

1. Working from inside, drill two holes in the flange on each end of the Liebert CW and into the frame of the Liebert Air Economizer.
2. Insert the sheet metal screws into the frame of the Liebert Air Economizer and tighten until the units are securely attached.
3. After the units are securely connected, remove the safety straps attached in **Step 2** in **2.2 - Install the Liebert Air Economizer—Preliminary Steps**.
4. Clean up any metal particles and other debris from the installation.
5. Reattach the exterior panels to the Liebert Air Economizer.

Figure 4 Dimensions—Liebert Air Economizer and Liebert CW™ models CW026D-CW084D



DPN001411
Rev. 0

Table 1 Dimensions—Liebert Air Economizer and Liebert CW models CW026D-CW084D

Liebert CW Model	Dimensions, inches (mm)		
	A	B	C
CW026D, CW038D, CW041D	46 (1168)	50 (1270)	40 (1016)
CS051D, CW060D	70 (1778)	74 (1880)	64 (1626)
CW076D, CW084D	95 (2413)	99 (2515)	89 (2261)

Source: DPN001411, Rev. 0

2.2.3 Attach the Liebert Air Economizer to a Liebert CW146/181 or Liebert DS028-105

The Liebert CW™—CW146/181 and Liebert DS™ 028-105 have no flanges on top. Position the Liebert Air Economizer on top of either cooling unit so that it covers the air entry opening and the plenum and unit will be flush on the ends and back when the panels are installed.

⚠ WARNING

Risk of heavy unit falling. Can cause equipment damage, personal injury or death.

The Liebert Air Economizer must be supported until it is securely connected to the Liebert DS to prevent it from slipping off the cooling unit.

1. Locate the holes in the rear filter support flange in the plenum; use these as guides to drill screw pilot holes into the top of the unit rear sheet metal blocker.
2. Insert sheet metal screws through these flanges into the top of the unit.
3. Measure and mark the distance from the front of the electric box top flange in unit back to the center of the plenum frame bottom 1 x 1 tubing, approximately 1-1/2" (38mm).
4. Cover electric box components to prevent metal shavings and debris contamination from the drilling process.
5. Drill screw pilot holes from inside the electric box up through the plenum frame (3-6 places depending on length of plenum).
6. Insert screws through electric box and plenum tubing to secure the front of the plenum.
7. After the units are securely connected, remove the safety straps attached in **Step 2** in **2.2 - Install the Liebert Air Economizer—Preliminary Steps**.
8. Clean up any metal particles and other debris from the installation.
9. Reattach the exterior panels to the Liebert Air Economizer.

Figure 5 Dimensions—Liebert Air Economizer and Liebert CW™ models CW106D/114D

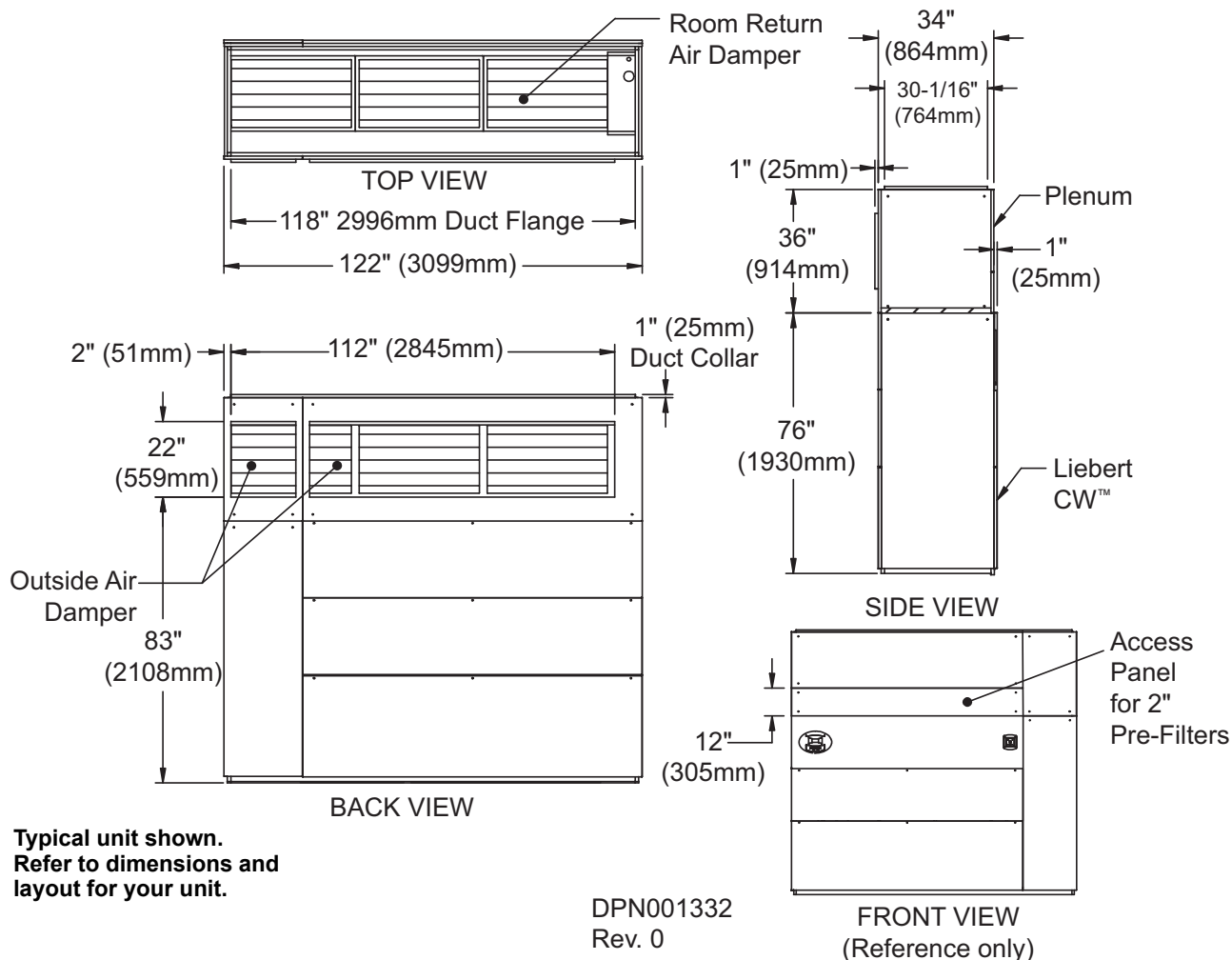


Figure 6 Dimensions—Liebert Air Economizer and Liebert CW™ models CW146/181

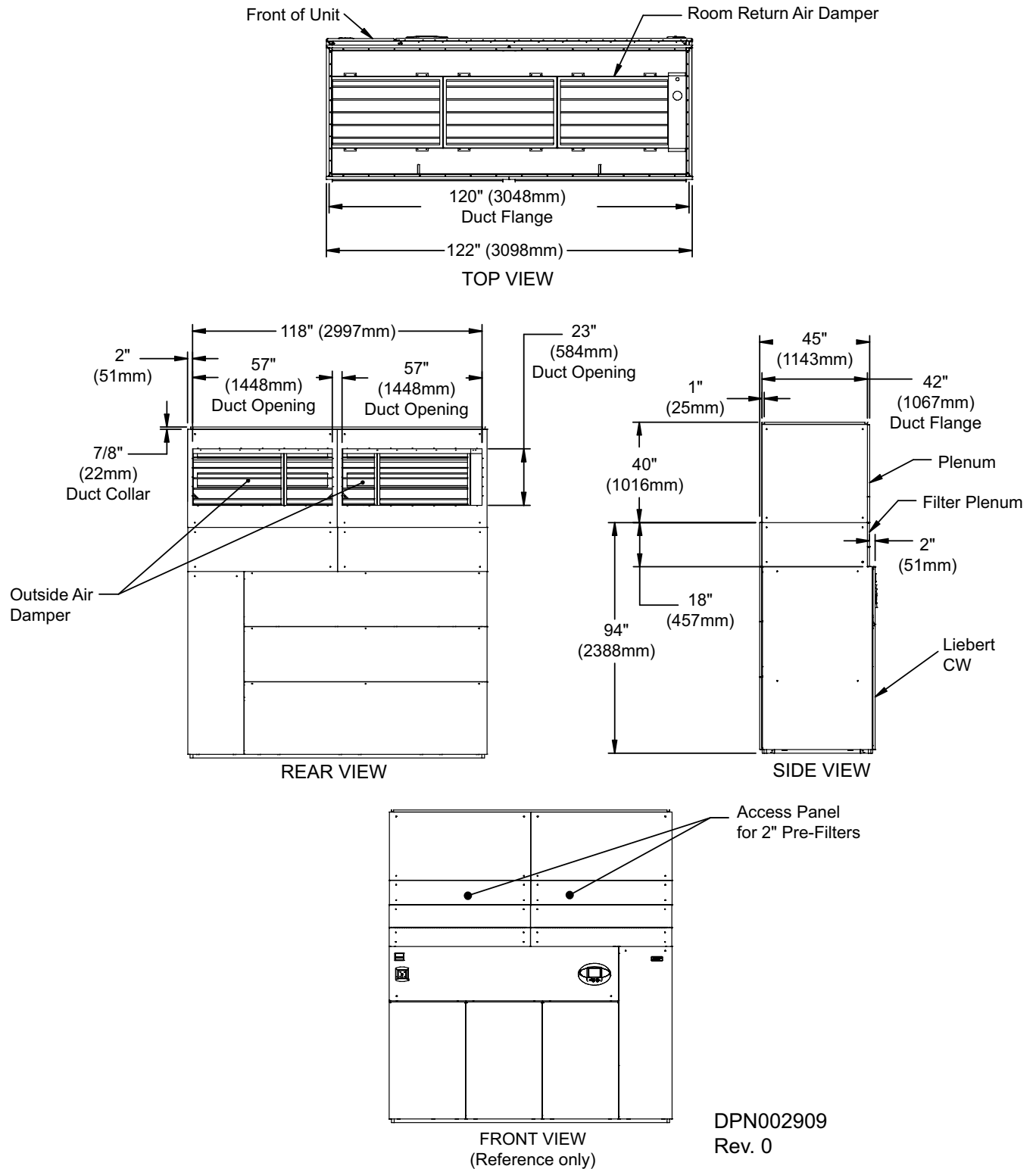


Figure 7 Dimensions—Liebert Air Economizer and Liebert DS™ downflow units, 28-105kW (8-30 tons)

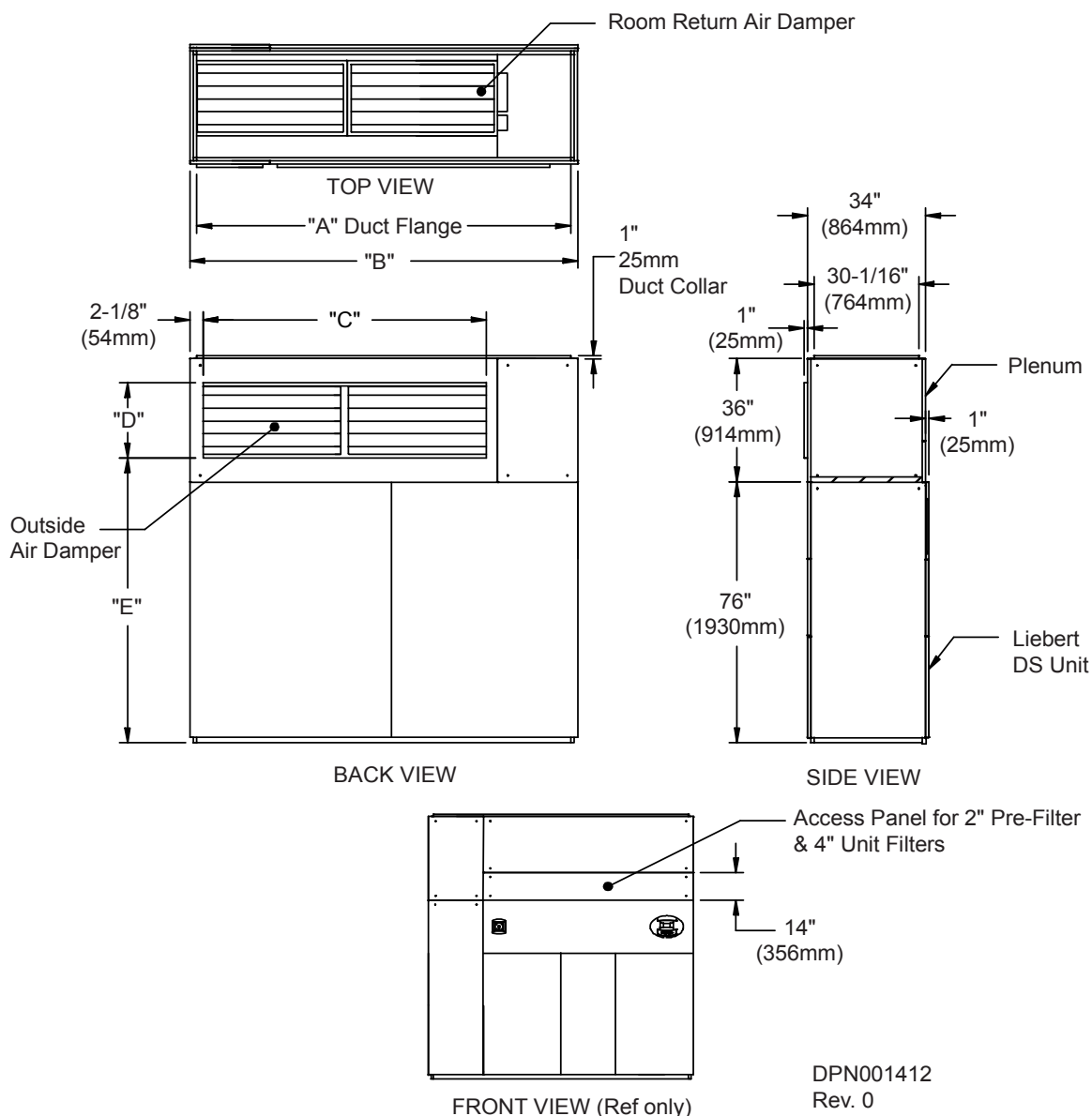


Table 2 Liebert DS model dimensional data, 28-105kW (8-30 tons)

Model # and Flow Rate	Compressor Type	Dimensions, inches (mm)				
		A	B	C	D	E
028-042 (5500 cfm [2596 l/s] or less)	Four-Step Semi-Hermetic	82 (2083)	86 (2184)	56 (1422)	14.5 (368)	91 (2311)
028-042 (5500 cfm [2596 l/s] or less)	Digital Scroll	69 (1755)	73 (1854)	56 (1422)	14.5 (368)	91 (2311)
028-042 (more than 5500 cfm [2596 l/s])	Semi-Hermetic	82 (2083)	86 (2184)	56 (1422)	17.5 (445)	88 (2235)
028-042 (more than 5500 cfm [2596 l/s])	Digital Scroll	69 (1755)	73 (1854)	56 (1422)	17.5 (445)	88 (2235)
053-077	Semi-Hermetic	105 (2667)	109 (2769)	79 (2007)	17.5 (445)	88 (2235)
053-077	Digital Scroll	94 (2388)	98 (2489)	79 (2007)	17.5 (445)	88 (2235)
105	All Types	128 (3251)	132 (3353)	102 (2591)	17.5 (445)	88 (2235)

Source: DPN001412, Rev. 0

2.3 Wiring the Liebert Air Economizer



WARNING

Arc flash and electric shock hazard. Open all local and remote electric power disconnect switches, verify with a voltmeter that power is Off and wear personal protective equipment per NFPA 70E before working within the electric control enclosure. Failure to comply can cause serious injury or death.

The Liebert Air Economizer must be connected by a licensed and qualified electrician only. Ensure that the Liebert Air Economizer and cooling unit are electrically isolated for the duration of the connection operation and are secured against unauthorized startup.

Before proceeding with installation, read all instructions and verify that all the parts are included. The Liebert iCOM® microprocessor does not isolate power from the unit, even in the “Unit Off” mode. Some internal components require and receive power even during the “Unit Off” mode of Liebert iCOM control.

The line side of the optional, factory-installed disconnect switch contains live hazardous voltage power even in the off position.

The only way to ensure that there is NO voltage inside the unit is to install and open a remote disconnect switch and check the internal power with a voltmeter. Refer to unit electrical schematic.

Follow all local codes.



CAUTION

Risk of sharp edges. Can cause personal injury or wiring damage.

Wear gloves to prevent injury to hands.

Damage to high-voltage factory wiring or components can make unit unsafe to operate.

Use caution when installing Liebert Air Economizer wiring to prevent damage to factory wiring.

Install protective bushings in wiring knockouts as required. Damage to the Liebert Air Economizer’s low-voltage wiring can cause improper operation.

Do not disturb factory wiring or route field-installed wiring over electrical terminals.

Check and retighten all wiring connections before starting the unit.



NOTE

Before beginning to install the Liebert Air Economizer, read all instructions, verify that all the parts are included and check the nameplate to be sure the Liebert Air Economizer voltage matches available utility power.

Follow all local and national codes.

2.3.1 Wire the Dampers

The damper wiring is coiled and attached to the interior of the Liebert Air Economizer. The locking connectors must be snapped into similar connectors in the primary cooling unit for the dampers to operate. The wiring must also be secured to the Liebert Air Economizer’s frame to protect it.

To connect the damper wiring:

1. Locate the damper wiring inside the Liebert Air Economizer—see **Figures 8, 9 and 10**, depending on unit.

The wires are coiled and attached to the Liebert Air Economizer frame.

2. The wires have snap connectors that mate to wires secured to the cooling unit’s frame.

Figure 8 Damper wiring connections—Liebert CW™—CW026-CW084 units

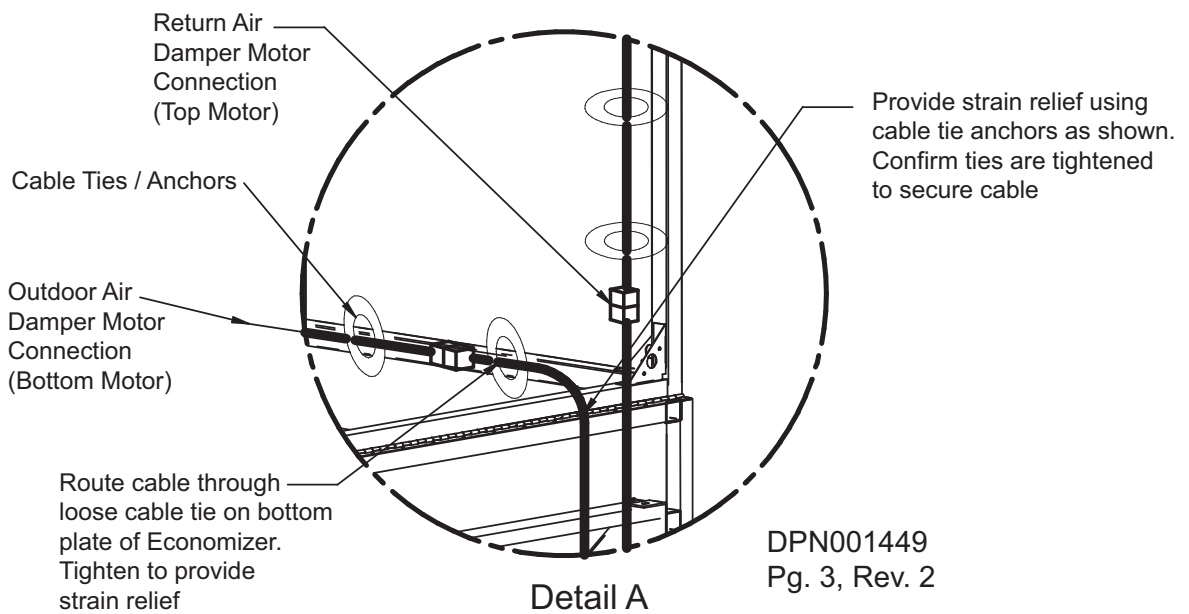
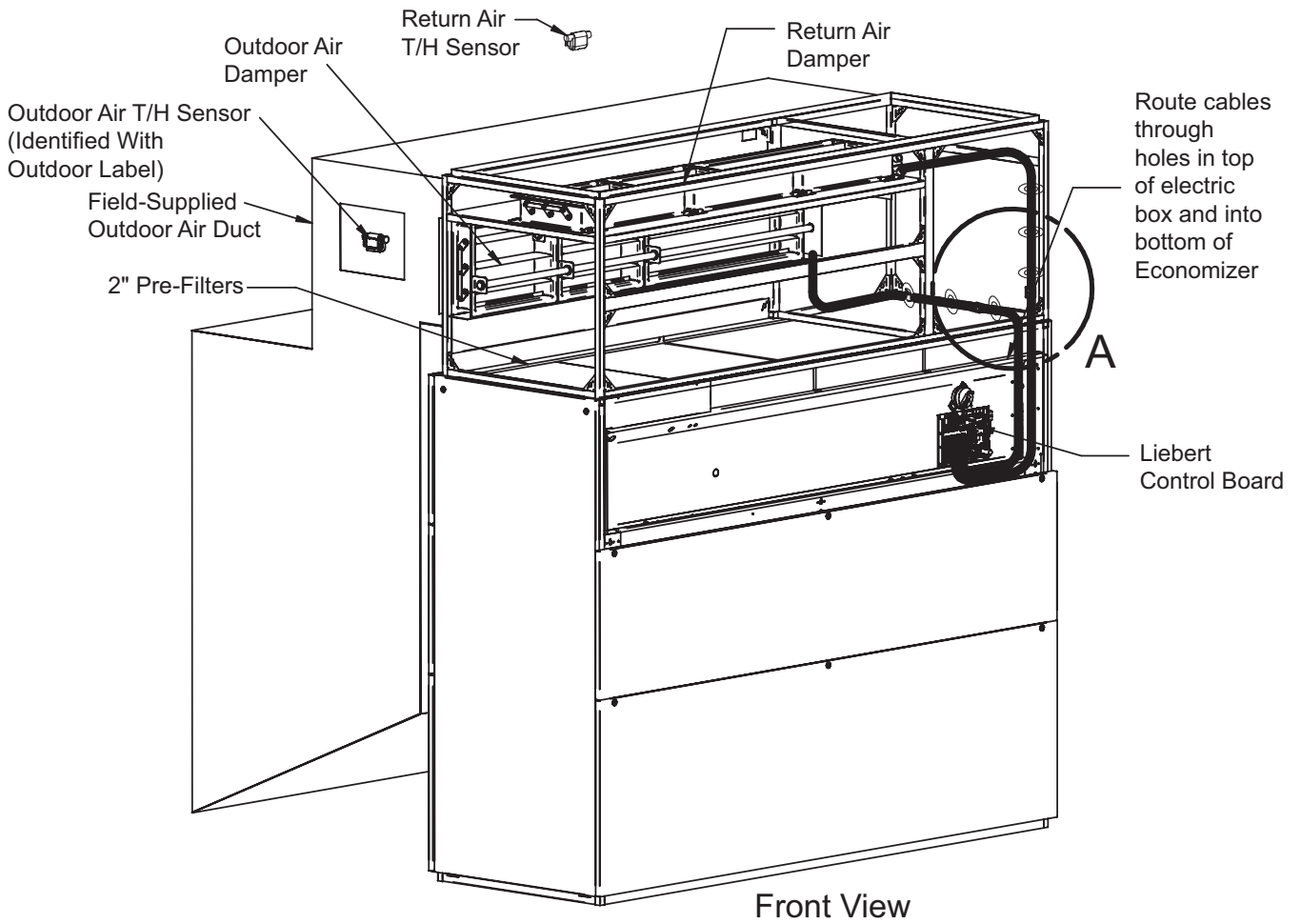
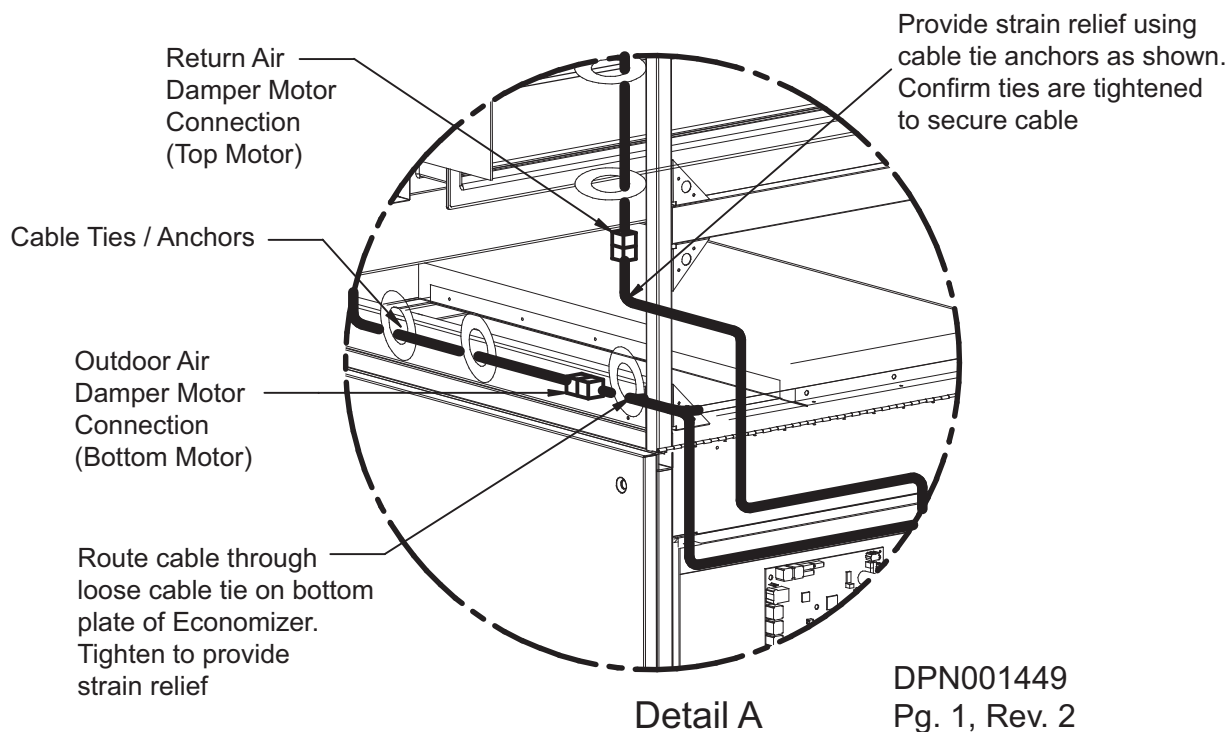
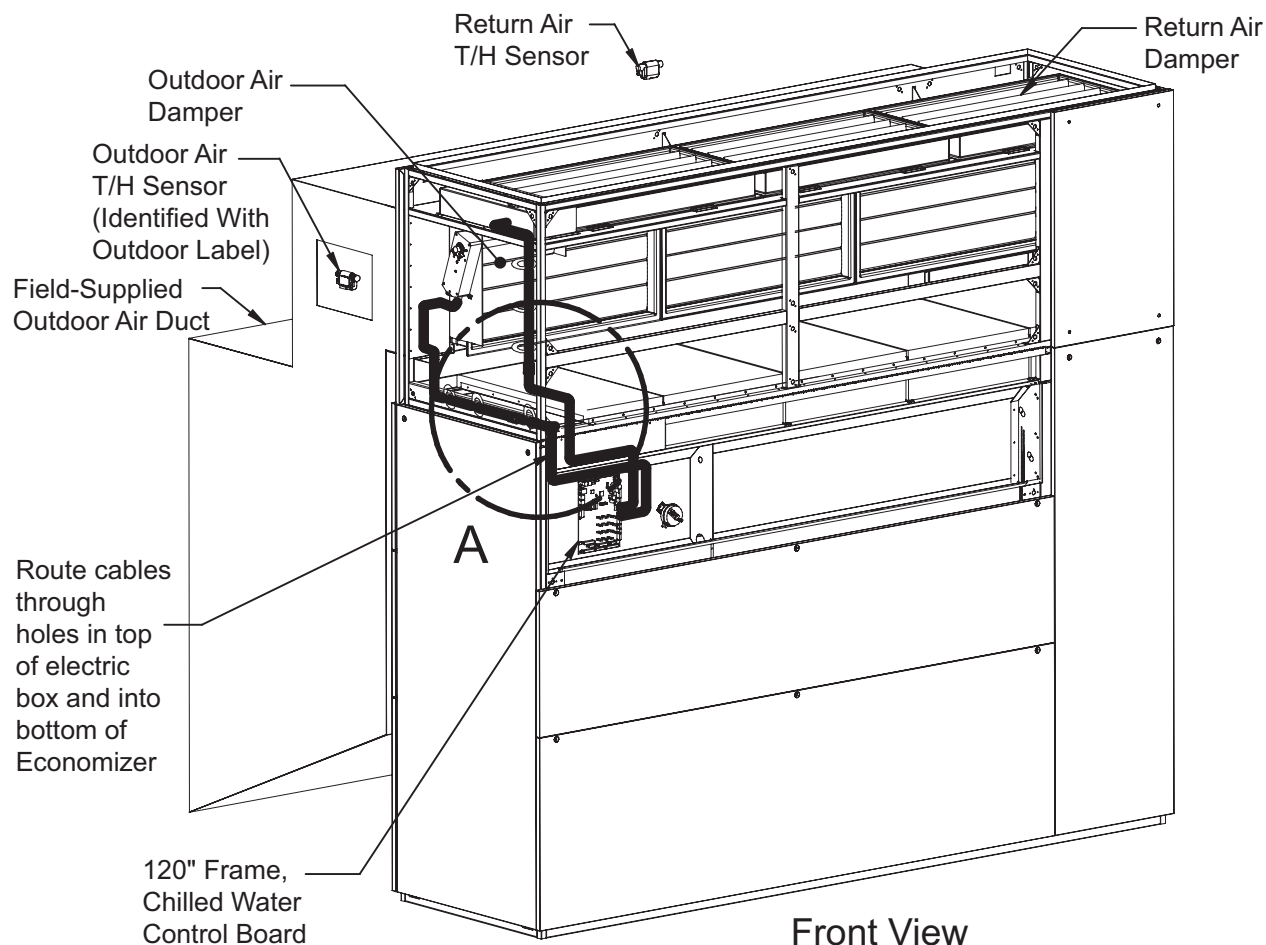
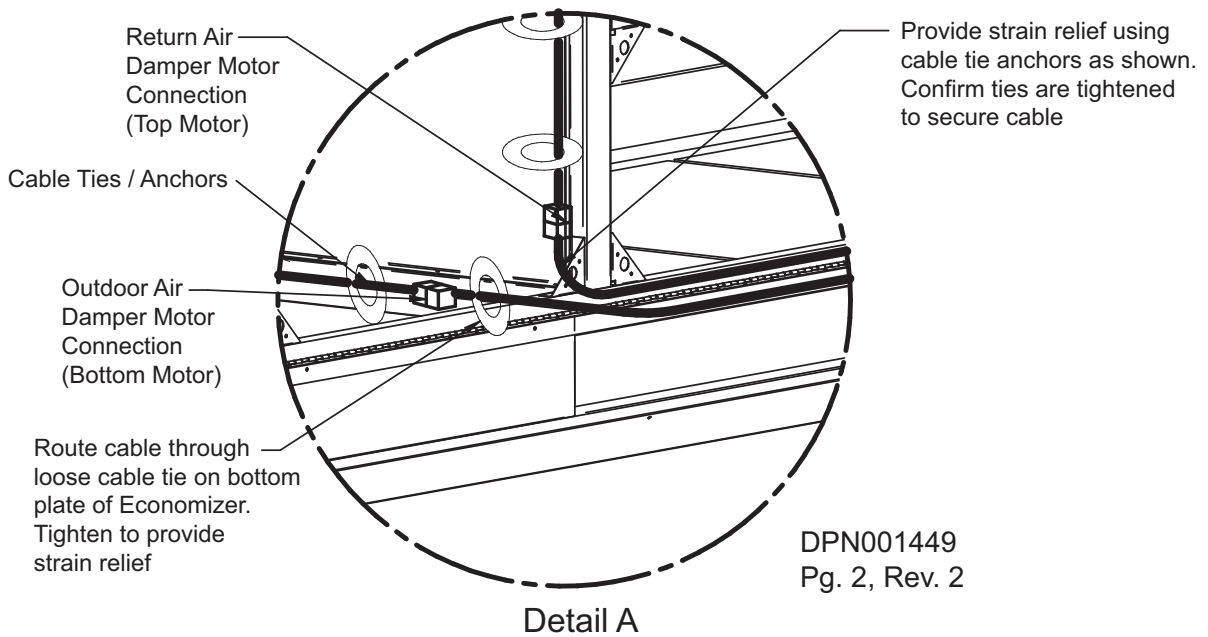
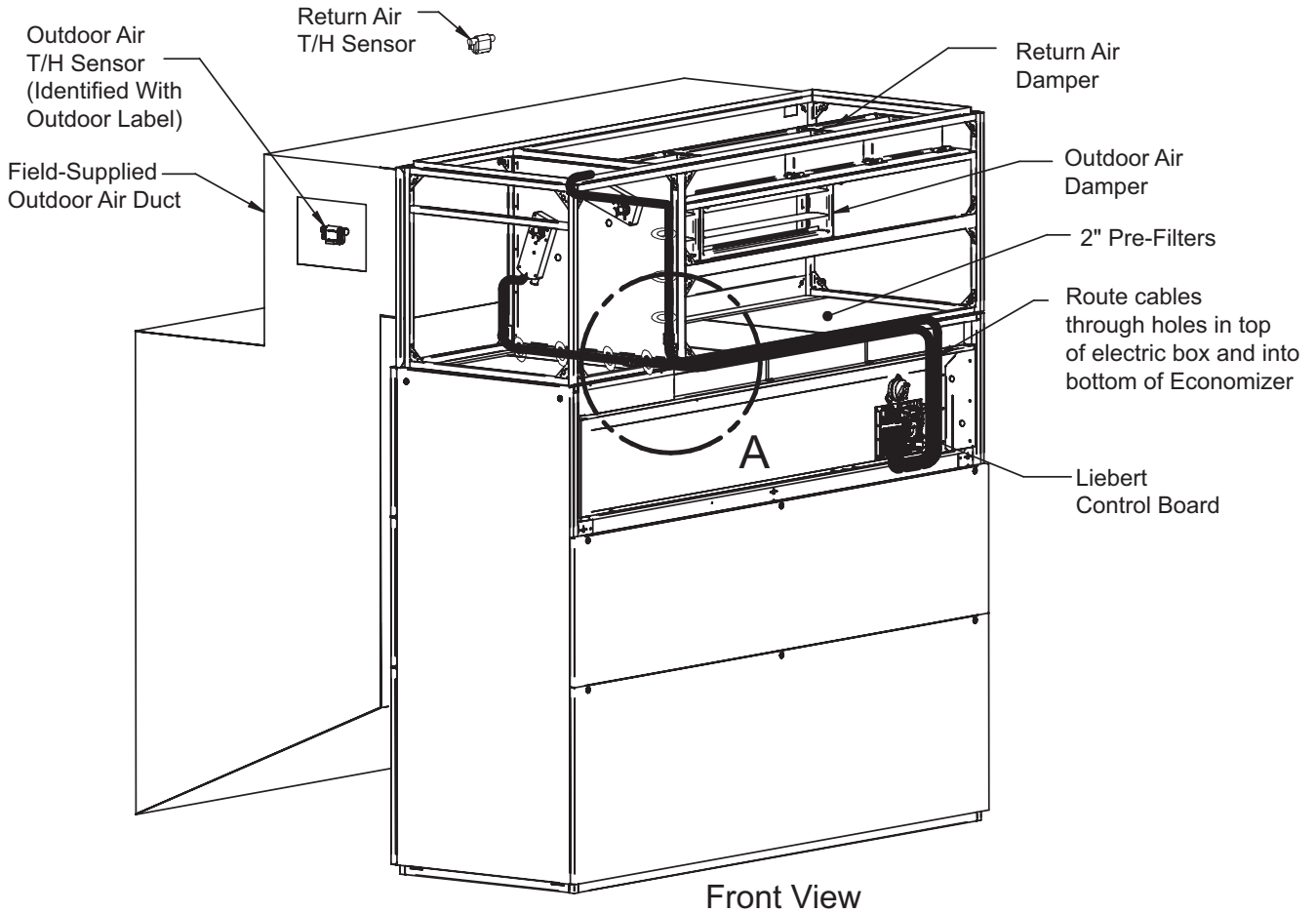


Figure 9 Damper wiring connections—Liebert CW™—CW106 / CW114 units



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Figure 10 Damper wiring connections—Liebert DS™ units



2.3.2 Outdoor Air and Return Air Temperature and Humidity Sensor Connections

The Liebert Air Economizer ships with sensors to determine the temperature and humidity of return air and outdoor air. The sensors and wiring to connect them are in boxes inside the Liebert Air Economizer:

- Outdoor air sensor
- Return air sensor
- Supply air thermistor (factory-connected to the main interface board)

These must be installed and connected to the primary cooling unit. The outdoor air sensor and return air sensor connections for the Liebert DS™ and Liebert CW™ are shown in **Figure 11**. Connect the supply air thermistor as shown in **Figure 12** (it must be routed from the cooling unit and secured). The illustration shows connections for the Liebert DS and Liebert CW.

Outdoor Air Sensor Placement

The outdoor air sensor must be installed in the outside air duct where it is not exposed to damaging weather, especially precipitation. The outside air sensor is conformally coated to ensure sensor reliability by protecting against moisture, dust, chemicals and temperature extremes.

Figure 11 Temperature and humidity sensor connections—Liebert DS and Liebert CW

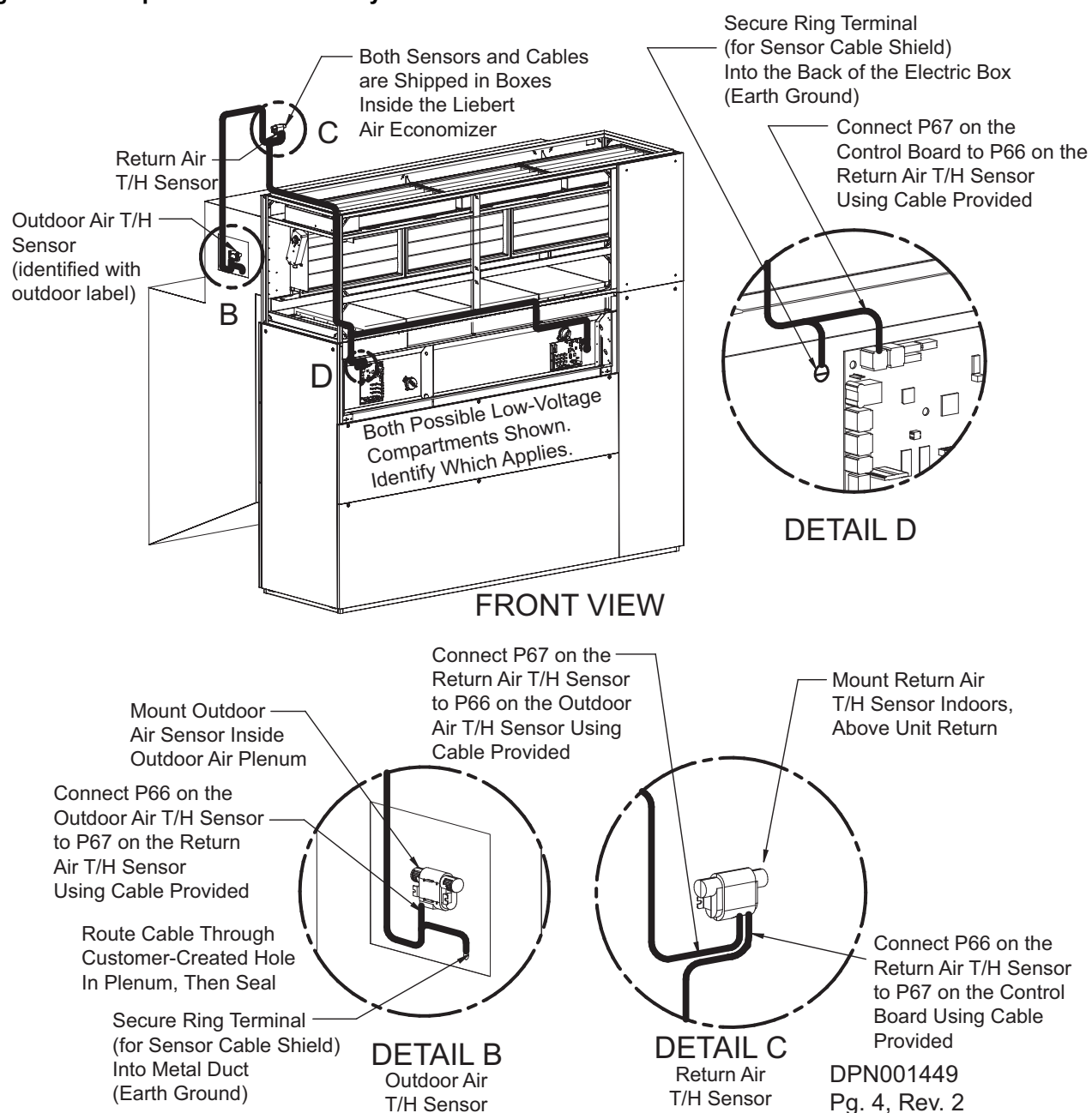
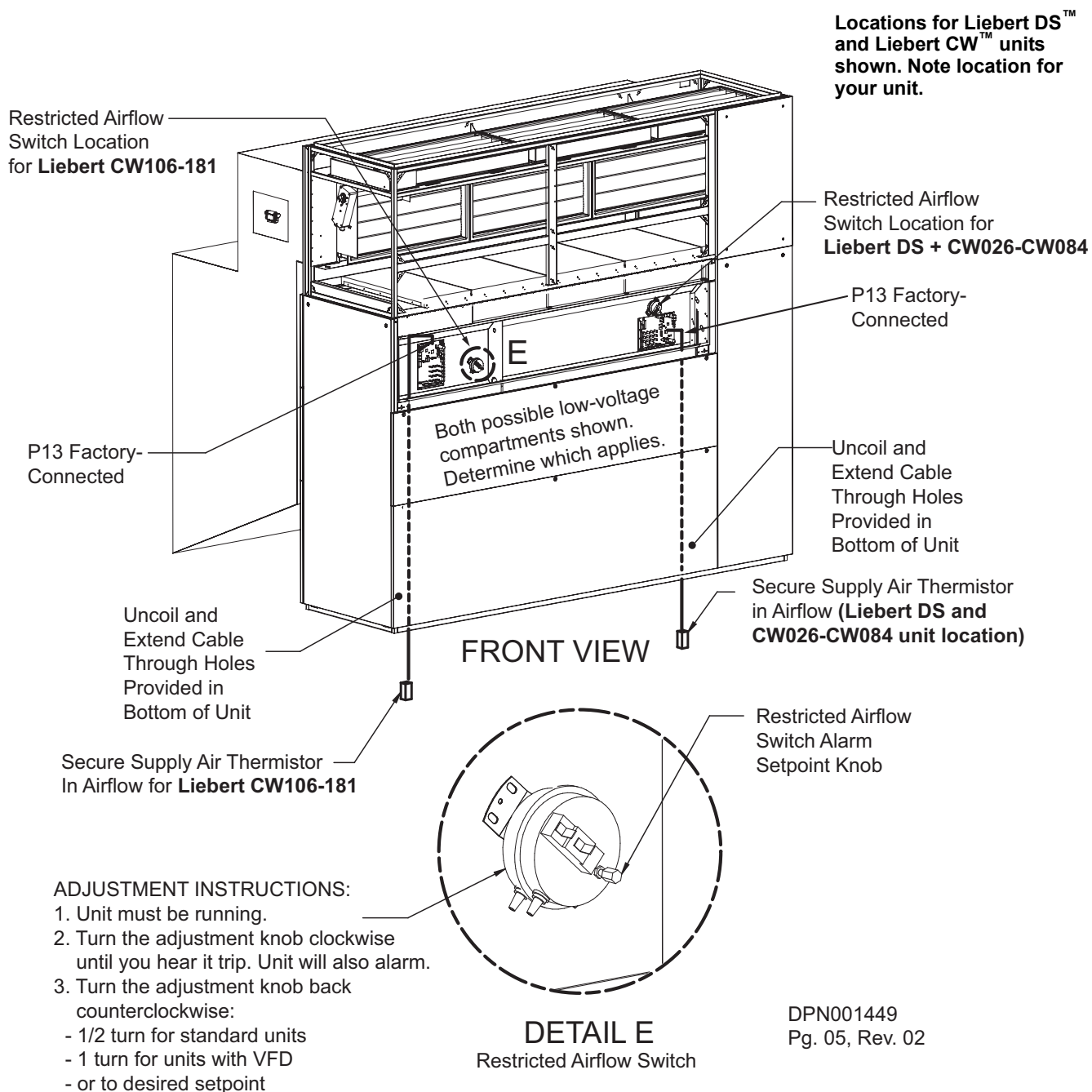


Figure 12 Supply thermistor wiring and restricted airflow switch location



2.4 Adjust the Restricted Airflow Switch on the Liebert Air Economizer

The restricted airflow switch inside the cooling unit must be adjusted for the Liebert Air Economizer to operate properly and efficiently. To adjust the switch:

1. Inspect all connections, restore power to operate the unit's blower.
2. Go to the Service Menus, Diagnostic / Service Mode.
3. Enter the Service Menu password **5010**.
4. Enable manual mode on line S313. The unit will shut Off.
5. Go to line S314 Motors and change the value displayed from No to Yes. This will allow the evaporator fan to run with the outside air damper at minimum position.
6. Confirm the fan is running at minimum speed. This is shown on line S343 "Analog Out 3" of the Diagnostics / Service Mode.
7. Confirm the outside air damper has moved to the minimum position by visually checking damper position.
8. Find the restricted airflow switch in the cooling unit (**Figure 12** shows the switch location in both the Liebert CW™ and Liebert DS™).
9. Turn the restricted airflow switch alarm setpoint knob clockwise until it trips. The cooling unit will also alarm.
 - a. Place a voltmeter on Terminal 56 and on the chassis ground.
 - b. Turn the airflow sensor counterclockwise until the voltmeter indicates 0 VAC.
 - c. Turn the airflow sensor adjustment screw clockwise until the voltmeter indicates 24VAC.
 - d. When the voltmeter shows 24VAC, turn the screw counterclockwise one full turn.
10. Once the airflow switch has been calibrated, go to Service Menus, Diagnostics > Service Mode. Using the Service Menus password *5010*, disable manual mode on line S313.
11. Cycle power Off to the unit using the I/O button.
12. Turn the unit Off at the disconnect.
13. Cycle power back On to the disconnect.
14. Press the I/O button once the control has finished booting up.
15. Verify unit operation as the fan starts and the outside damper opens.

If a *Reduced Eco Airflow* alarm occurs during when the unit starts, the alarm time delay located in Service > Set Alarms may need to be adjusted higher.

The reduced airflow alarm is latched in the control for 90 minutes after calibration. Acknowledge this alarm and allow it to clear by pressing the horn button on the control once. The alarm may also be cleared by shutting Off power to the Liebert iCOM® and cycling power to the cooling unit. The unit will now resume normal operation.

3.0 INSTALLATION CHECKLIST

- ___ 1. Liebert Air Economizer received, unpacked and checked for damage.
- ___ 2. Liebert Air Economizer positioned and secured to indoor cooling unit.
- ___ 3. Duct work to outdoor opening properly sloped to prevent precipitation and dust infiltration.
- ___ 4. Outdoor air duct opening properly screened to prevent vermin from entering.
- ___ 5. Outdoor air duct opening protected against human intrusion.
- ___ 6. Filters installed in air intake duct work.
- ___ 7. Restricted airflow switch settings made.
- ___ 8. Low voltage connections made.
- ___ 9. Verify that the dampers open and close properly.
- ___ 10. Verify that the spring return closes the inlet damper if power is lost.
- ___ 11. Supply sensor is installed in discharge air stream approximately 5-15 ft. (1.5-4.6m) from the primary cooling unit.
- ___ 12. Temperature control sensor is set to "Supply."
- ___ 13. Outdoor air sensor is located in an area safe from harsh outside conditions.
- ___ 14. Outdoor air sensor is in an area of the outside air duct where it can accurately monitor outside air temperature when the system is in and out of economizer mode.
- ___ 15. Indoor air sensor is in an area of constant air flow where it can accurately monitor indoor conditions when the system is in and out of economizer mode.
- ___ 16. Indoor and outdoor dampers move freely, inversely to one another (for example, the indoor damper is open when outdoor damper is closed).

4.0 OPERATION

Liebert cooling units control the Liebert Air Economizer using the Liebert iCOM[®]. For more information on staging the Liebert Air Economizer, refer to the Liebert Air Economizer operation portion of the Liebert iCOM user manual, SL-18835 available at the Liebert Web site:

www.Liebert.com

5.0 MAINTENANCE

The Liebert Air Economizer requires little maintenance when proper installation, startup and operation procedures are followed. The following tasks should be performed at the intervals stated:

- ___ 1. Check outside air entry ducting every 4-6 weeks for precipitation infiltration. Alter outside opening as required.
- ___ 2. Check screen and filters monthly or more often, depending on air quality. Replace or clean as necessary.
- ___ 3. Inspect the damper system (louvers, motor and linkage) at startup and every 4-6 weeks for proper adjustment, dust, dirt and corrosion. Clean any matter that will inhibit air flow with compressed air or commercial coil cleaner.
- ___ 4. Check for bent or damaged components and repair as necessary.
- ___ 5. Monitor for air leaks during normal operation; check for air leakage every six months.
- ___ 6. Verify powered relief air system during normal operation; check operation every six months.

Perform all maintenance on your indoor cooling unit (Liebert DS™ or Liebert CW™) as required.

6.0 TROUBLESHOOTING

Table 3 Liebert Air Economizer troubleshooting

Problem	Possible Cause	Remedy
Reduced Airflow	Blocked filter	Replace or clean filter.
	Improper duct size	Enlarge duct.
	Improper relief air/exhaust fan	Install properly sized, operating fan.
	Debris on screens	Clean debris off screen.
	Air intake location	Move air intake.
High/Low Temp	Sensors not plugged in	Connect sensors.
	Control not set properly	Adjust control/alarm setpoints.
	Plenum installed backward	Remove plenum and reinstall correctly.
High/Low Humidity	Humidity is not controlled by Liebert Air Economizer, no alarm	Turn Off the Liebert Air Economizer; use primary cooling unit only.
	Lack of vapor barrier	Widen humidity alarm range.
Moisture enters unit	Improper rain shielding	Install overhang to keep rain out of intake.
	Improper duct design	Redesign duct with proper slope.
Contaminants or particulates enter conditioned space	Improper location of inlet air	Move inlet air duct
	Improper air filtration	Install higher-efficiency filters or. correct installation of current filters.
	Corrosive environment	Contact Liebert at 1-800-LIEBERT.
Pollen, objectionable or noxious odors or gases enter conditioned space	Filters will not remove pollen or odors	Deactivate the Liebert Air Economizer.
Air damper—outside or room return—does not open or does not close	Motor not oriented properly	Adjust motor position.
	Linkage not adjusted	Adjust linkage.
	Corrosion	Clean corrosion and lubricate properly.
	Improper wiring	Check and correct wiring connections.
No damper function or signals to damper	The Liebert Air Economizer software is not present, in control, or was overwritten during software upgrade	Verify that the Liebert Air Economizer screens are missing and install Liebert Air Economizer software to Liebert iCOM [®] control.
Unit is not operating the Liebert Air Economizer when it should.	Outdoor temperature is too warm compared to indoor temperature.	Verify outdoor and indoor sensor temperatures. Check the setting on S136 in the Liebert iCOM.
	Comparator circuit set incorrectly.	See lines S135 and S136 for more information.
	Outdoor air conditions are not acceptable to permit Liebert Air Economizer operation.	See the Liebert iCOM manual for defined operational ranges. These parameters are defined in Service Menus> Economizer SA04-SA06.
	The Liebert Air Economizer has been disabled by the BMS.	Check status of SA02 in the Liebert iCOM Service Menus> Economizer. This status changes from Yes to No when a BMS override is active.
	Room temperature has deviated too far from setpoint while the Liebert Air Economizer was operating.	Check the programming of SA07 in the Liebert iCOM Service Menus> Economizer.
Some units in the facility are operating in the Liebert Air Economizer but others are not.	Outdoor temperature sensed by the units is too warm.	Check outdoor sensor positioning. Consider enabling sensor sharing in the Liebert iCOM on SA16 of Service Menus> Economizer (applicable to units connected in a Liebert iCOM U2U network).

Table 3 Liebert Air Economizer troubleshooting (continued)

Problem	Possible Cause	Remedy
The room is over pressurized when air economizer demand is high.	Room pressure relief vent not adequately sized.	See design engineer for further assistance.
The fan is not ramping according to deviation from the fan temperature setpoint.	The fan speed is increasing with the call for the Liebert Air Economizer.	Consider disabling S16B of Service Menus> Setpoints.

Notes

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