



Control the Elements



Split Refrigeration Systems

Owner's Manual



CONGRATULATIONS!

Thank you for purchasing a new CellarPro cooling system.

Please take a minute to read through this Owner's Manual before you unpack, install and turn on your Cooling Unit.

If you have any questions about your new cooling unit, it is likely that you will find the answers in this Owner's Manual. We also have more information on our website, including the latest version of the Owner's Manual, at www.cellarpro.com/customer-service.

If you still have questions, please don't hesitate to contact your dealer or CellarPro directly. We can be reached during normal business hours at 707.794.8000. You also may contact us anytime via email at info@cellarpro.com.

Contact Information:

CellarPro Cooling Systems

1445 N. McDowell Blvd

Petaluma, CA 94954

707.794.8000

Email: info@cellarprocoolingsystems.com

Website: www.cellarprocoolingsystems.com

IMPORTANT WARRANTY INFORMATION FOR YOUR SPLIT SYSTEM

Make sure to activate your warranty by having the installing technician complete the Support and Data Service Sheet at the end of this Owner's Manual. Once completed, please fax to us at 707.794.8005, or scan and email to us at info@cellarpro.com.

Once we receive the completed Sheet, we'll review the data to make sure the cooling system is installed properly.

YOUR WARRANTY WILL NOT BE ACTIVATED UNTIL WE RECEIVE THE COMPLETED CHECKLIST AND INSTALLATION ISSUES (IF ANY) HAVE BEEN RESOLVED. If the unit malfunctions, we cannot assist you unless/until we receive the completed checklist. If the unit is damaged because of improper installation, repair services will be provided on a time and materials basis.



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I. Package Contents

3000S, 4000S

BOX 1:

| DESCRIPTION | QTY |
|-----------------------------|--------|
| EVAPORATOR | 1 |
| TOP MOUNTING BRACKET | 2 |
| SIDE MOUNTING BRACKET | 2 |
| WALL MOUNTING SCREWS | 16 |
| DRAIN TUBING | 10 FT. |
| OWNERS MANUAL | 1 |
| CORK TAPE | 1 FT. |
| DRAIN KNOCKOUT SNAP BUSHING | 1 |
| SIGHT GLASS | 1 |
| FILTER DRIER | 1 |

BOX 2:

| DESCRIPTION | QTY |
|-----------------|-----|
| CONDENSING UNIT | 1 |

BOX 3 (OPTIONAL):

| DESCRIPTION | QTY |
|-------------------------------|-------|
| CONDENSING UNIT OUTDOOR COVER | 1 SET |
| COVER ASSEMBLY HARDWARE | 1 SET |

3000Sh, 4000Sh, 6000S, 8000S

BOX 1:

| DESCRIPTION | QTY |
|-----------------------------|--------|
| EVAPORATOR | 1 |
| REAR WALL MOUNTING BRACKET | 2 |
| WALL MOUNTING SCREWS | 6 |
| DRAIN TUBING | 10 FT. |
| OWNERS MANUAL | 1 |
| CORK TAPE | 2 FT. |
| DRAIN KNOCKOUT SNAP BUSHING | 1 |
| HOLE PLUGS FOR ANCHOR BOLTS | 2 |
| SIGHT GLASS | 1 |
| FILTER DRIER | 1 |

BOX 2:

| DESCRIPTION | QTY |
|-----------------|-----|
| CONDENSING UNIT | 1 |

BOX 3 (OPTIONAL):

| DESCRIPTION | QTY |
|-------------------------------|-------|
| CONDENSING UNIT OUTDOOR COVER | 1 SET |



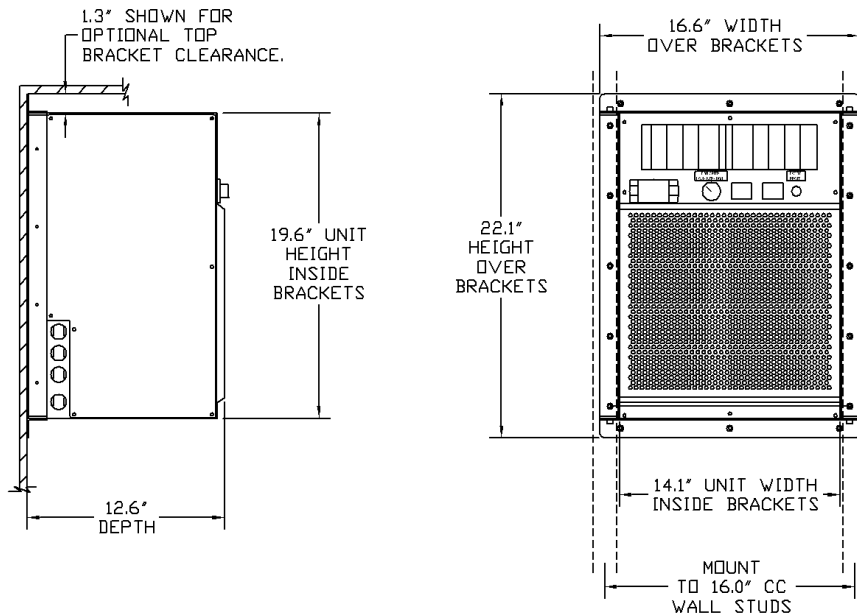
II. Specifications, Cut Sheets and Cellar Construction

| Evaporator | | | |
|------------|---|------------------|--------------------------------------|
| Model | Dimensions W x D x H (inches) | Weight (lbs.) | Running Amps (with fan on “high”) |
| 3000S | 16.6 x 12.6 x 22.1 (incl. mounting brackets) | 40 | 6.2 |
| 3000Sh | 30.4 x 14.4 x 13.2 (incl. mounting bracket) | 63 | 6.2 |
| 4000S | 16.6 x 12.6 x 22.1 (incl. mounting brackets) | 42 | 8.9 |
| 4000Sh | 30.4 x 14.4 x 13.2 (incl. mounting bracket) | 65 | 8.9 |
| 6000S | 30.4 x 14.4 x 13.2 (incl. mounting bracket) | 68 | 13.1 |
| 8000S | 46.4 x 14.4 x 13.2 (incl. mounting bracket) | 85 | 15.4 |

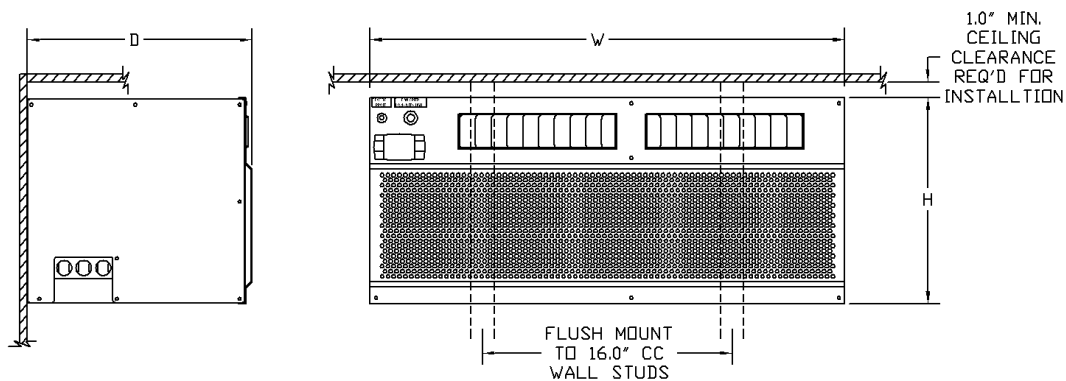
| | Condensing unit - Indoor | | Condensing unit - Outdoor | |
|------------------|----------------------------------|------------------|------------------------------------|------------------|
| Model | Dimensions W x D x H (inches) | Weight (lbs.) | Dimensions W x D x H (inches) | Weight (lbs.) |
| 3000S, 3000Sh | 13.5 x 18.9 x 9.1 | 42 | 19.4 x 23.3 x 18.8 (with cover) | 73 |
| 4000S, 4000Sh | 13.5 x 18.9 x 10.3 | 45 | | 76 |
| 6000S | 13.9 x 18.9 x 11.9 | 54 | | 85 |
| 8000S | 16.8 x 20.8 x 14 | 76 | | 107 |



Evaporator Cut Sheets



3000S / 4000S EVAPORATOR



3000Sh / 4000Sh / 6000S / 8000S EVAPORATOR

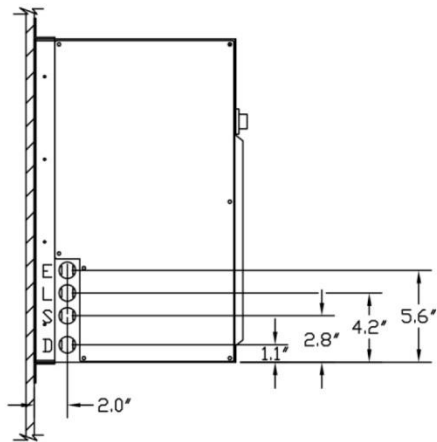
NOTE:
ELECTRICAL AND REFRIGERATION KNOCKOUTS
AVAILABLE TOP LEFT, BACK LEFT, OR SIDES.
REFER TO KNOCKOUT DETAIL DRAWING.

1452R07

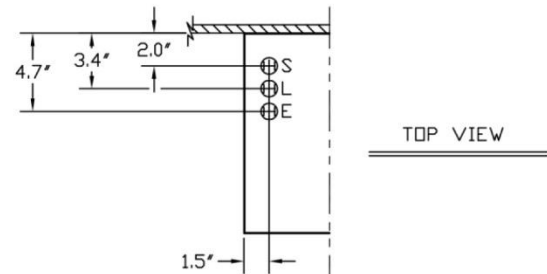


Evaporator Cut Sheets

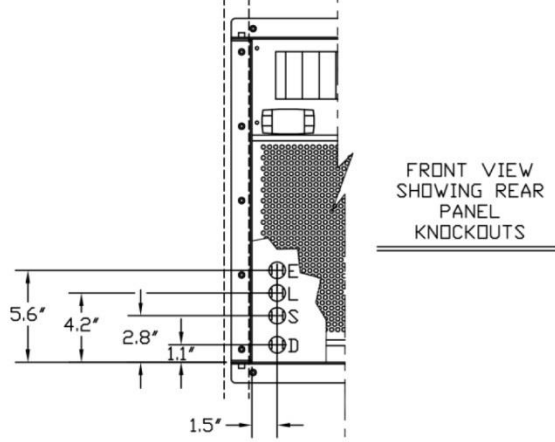
KNOCKOUT LEGEND:
L = LIQUID LINE
S = SUCTION LINE
E = ELECTRICAL CONDUIT
D = DRAIN LINE
ALL KNOCKOUTS 7/8"



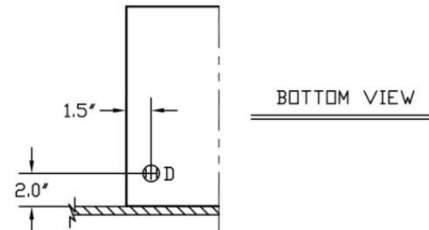
LEFT AND RIGHT SIDE



TOP VIEW



FRONT VIEW
SHOWING REAR
PANEL
KNOCKOUTS

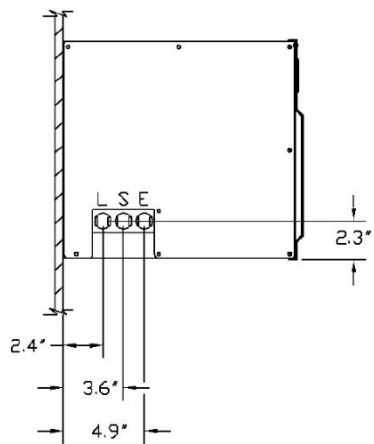


BOTTOM VIEW

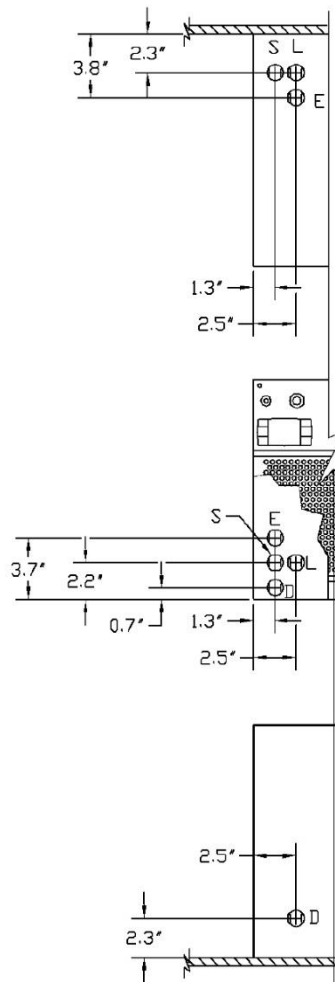
3000S / 4000S EVAPORATOR KNOCKOUT DETAIL

1479R01

KNOCKOUT LEGEND:
 L = LIQUID LINE
 S = SUCTION LINE
 E = ELECTRICAL CONDUIT
 D = DRAIN LINE
 ALL KNOCKOUTS 7/8"



LEFT AND RIGHT SIDE



TOP VIEW

FRONT VIEW
 SHOWING REAR
 PANEL
 KNOCKOUTS

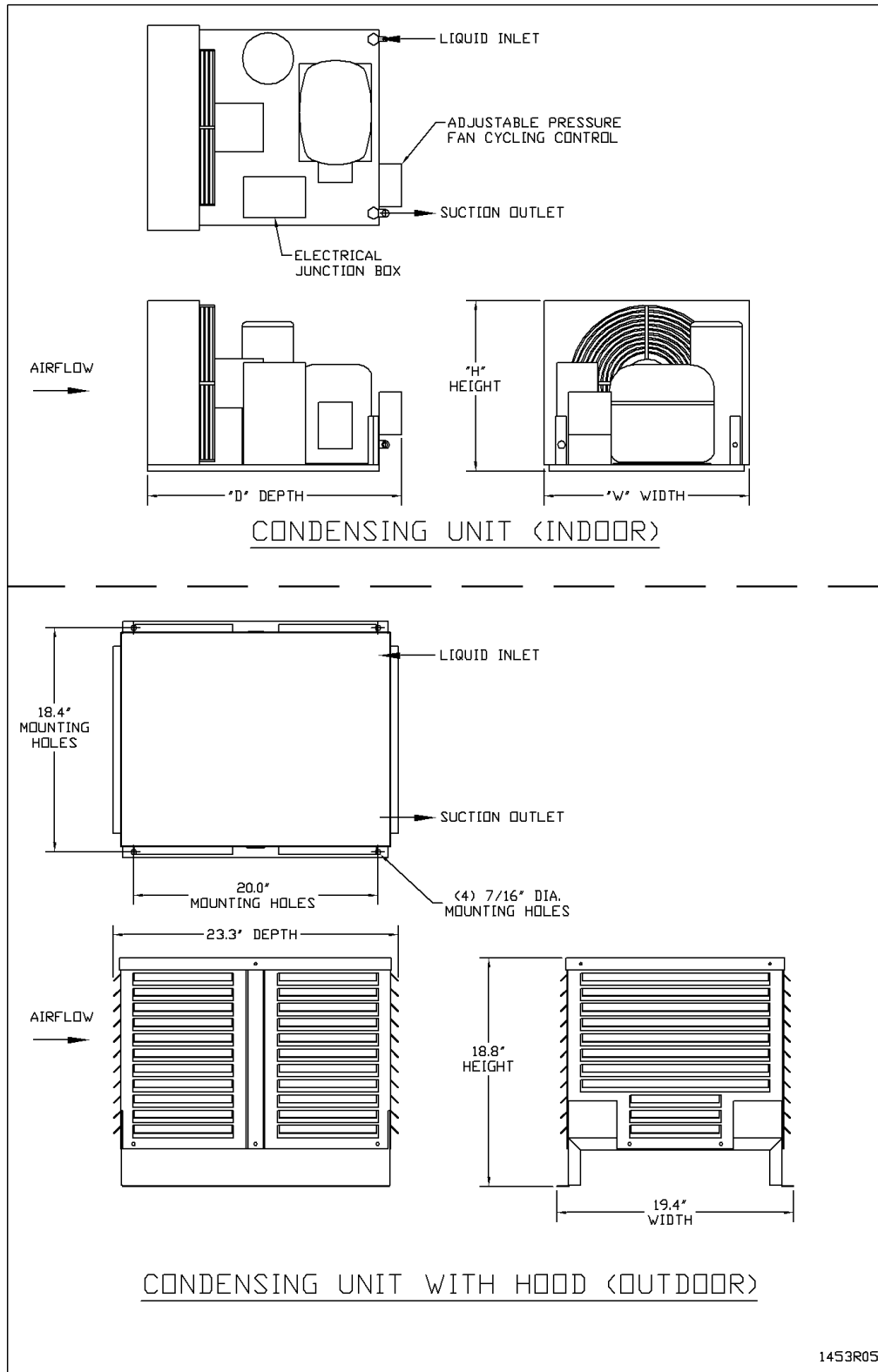
BOTTOM VIEW

3000Sh / 4000Sh / 6000S / 8000S
 EVAPORATOR KNOCKOUT DETAIL

1480R01



Condensing Unit Cut Sheets



Insulation

CellarPro cooling units are designed to be installed inside wine cellars that have proper insulation, moisture barriers and an airtight seal from the environment outside the cellar. Interior walls and floor should have a minimum of R-11 insulation, and a vapor barrier on the warm side of the insulation. The ceiling should have a minimum of R-19 insulation and a vapor barrier on the warm side of the insulation. Doors also should be insulated and tightly sealed with weather stripping around the perimeter of the door. Surface-mounted fixtures are recommended over recessed lighting, which can allow air to leak into the cellar.



It is important that all walls, joints, doors and windows, electrical outlets and/or switches, pipes, vents and light fixtures be sealed to prevent air and moisture from entering the cellar. If there is a leak in the cellar, the cooling unit will build up excess condensation.

The drain line (shipped loose with the cooling unit) must be connected to the drain pan (as shown in the installation section).

Fan Speeds

Your fan speed setting will depend on the thermal load on the wine cellar, and the resulting BTU that is required to cool and maintain your wine cellar at the desired temperature.

Ventilation

Adequate ventilation is critically important for the proper operation of your CellarPro cooling unit.



Outside the Cellar

Condensing unit Air Exhaust. Condensing units create significant hot air which must be exhausted into an appropriately-sized space in order for the heat to dissipate. If the space is constrained and/or too small, the heat will not dissipate. In this event, the cooling unit will be forced to re-circulate its hot air exhaust and/or the static pressure will back up the cooling unit. If this happens, the cooling unit's ability to create cold air inside the cellar will be compromised.

Condenser Air Intake. The condenser coils require access to cool air in order for the cooling unit to produce cold air. In addition, the cooling unit must be installed so that, after its installation, the condenser coils are accessible for periodic cleaning.

The Condensing unit cannot be ducted.

Inside the Cellar

Evaporator Air Intake. When the warm air passes across the evaporator coils, heat is removed from the air, and the resulting cold air is exhausted into the cellar. To ensure proper airflow, minimum clearance of 12" is required in front of the cooling unit.

Evaporator Air Exhaust. Cold air is exhausted at the top front of the cooling unit. Because CellarPro cooling units are located at the highest point inside wine cellars, the cold air exhaust eventually will drop to the bottom of the cellar. To ensure proper airflow and reduce temperature stratification inside the cellar, the space in front of the cold air discharge should be clear of any obstructions, including wine bottles, wine racks, etc.

Ducting For the Evaporator (3000S/4000S Models). Cold air exhaust and return (from the evaporator) can be ducted with our front duct hood up to 100 equivalent feet of total ductwork, or 50 equivalent feet for both the discharge and return ducting, using 8" diameter insulated ducting. Our front duct kit is compatible exclusively with our 3000S and 4000S cooling units. If you'd like to duct one of our larger cooling units, please consider our AH6500 and AH8500 cooling units.

Before attaching the front duct hoods, remove the front grill (if present) from the front of cooling unit.

We also offer a remote control panel kit that can be installed remotely (up to 10 feet) from the cooling unit, either inside or outside the cellar, and a bottle probe (10 foot cord) that can be plugged into the cooling unit.



III. Installation Instructions

Installation Instructions

Split System piping and wiring must be installed by a qualified Refrigeration Technician in accordance with local and national code requirements.

Condensing Unit Installation

Indoor and Outdoor Units

- The unit is designed to operate in temperatures ranging from 0°F to 110°F. A compressor heater (sold separately) is required for temperatures below 40°F.

Indoor Units

- Condensing units can be installed remotely from the cellar in an area protected from direct exposure to moisture and sunlight.
- The area must have suitable ventilation to maintain an ambient temperature of 110°F or less.
- If the area does not have adequate ventilation, a vent fan should be added to supply fresh air to the space (suggested 600CFM).
- A minimum of 12" of open air space is required in front of the condenser coils.
- Indoor units can be installed with the optional outdoor hood if additional mechanical protection is desired.
- A minimum of 12" of open air space around the perimeter of the outdoor hood is required.

Outdoor Units

- Condensing units must be installed with the outdoor hood if the unit will be located outdoors.
- A minimum of 12" of open air space around the perimeter of the outdoor hood is required.

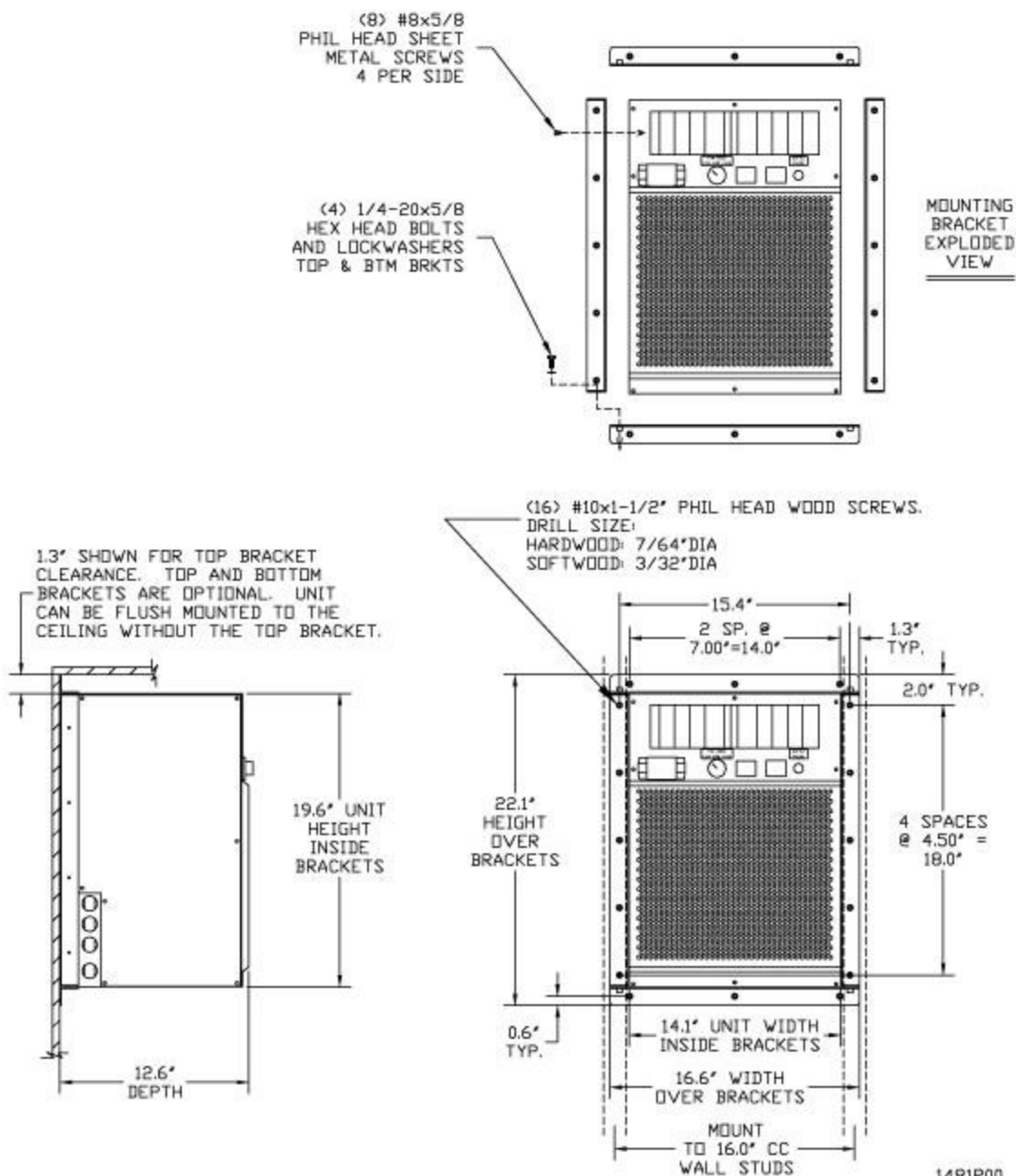
Evaporator Unit Installation

As warm air rises to the top of the cellar, the cooling unit pulls the warm air through the evaporator coil and removes the heat from the warm air. Once cooled, the cold air is discharged from the front of the cooling unit and circulates through the cellar. Therefore, we recommend mounting the evaporator as close to the ceiling as possible inside the cellar.

3000S / 4000S

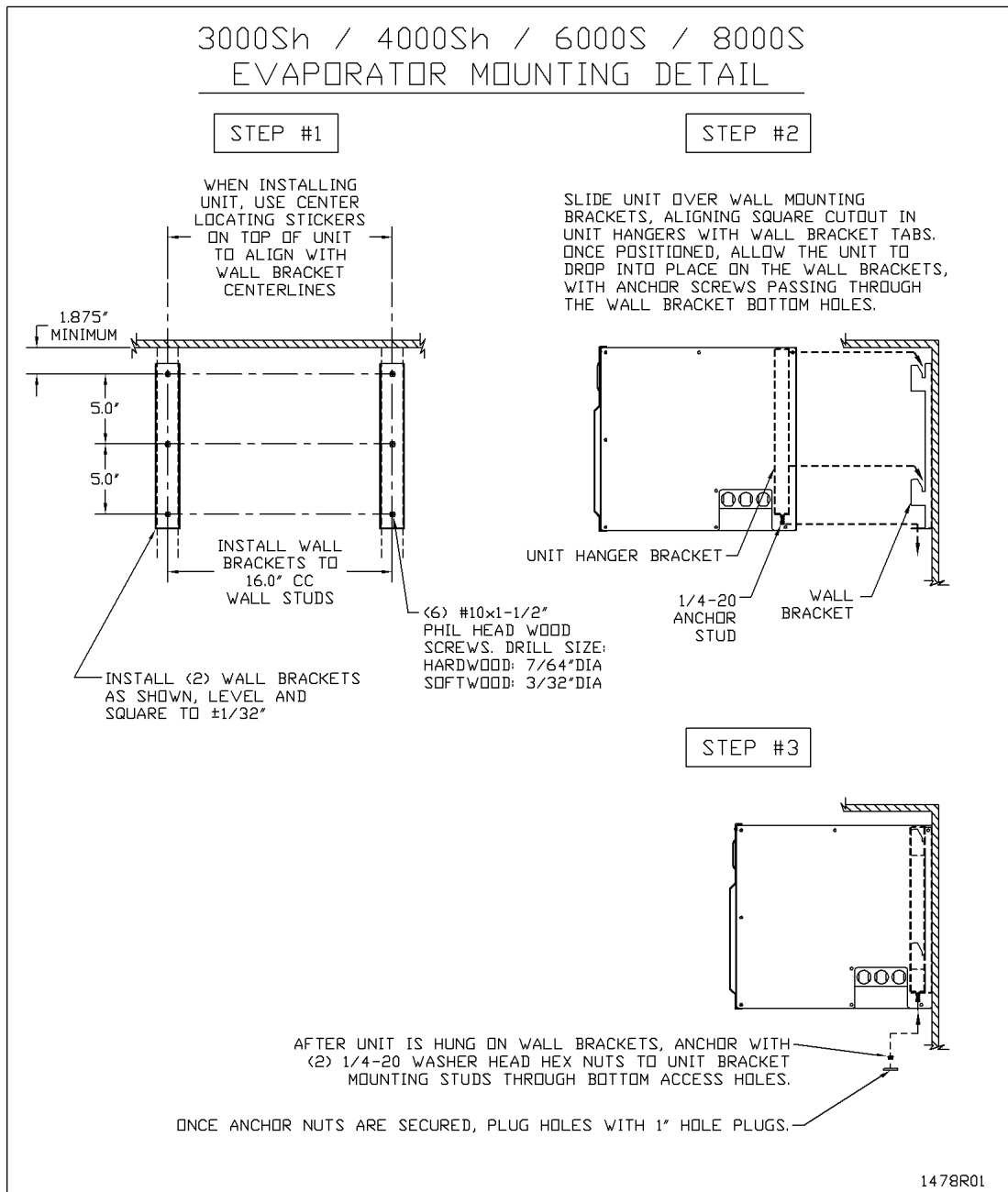
Side mounting brackets are provided for mounting the evaporator flush to a wall inside the cellar. Optional top and bottom brackets (non-load bearing) are available upon request.

3000S / 4000S EVAPORATOR MOUNTING DETAIL



3000Sh / 4000Sh / 6000S / 8000S

Wall hangers are used to mount these split systems. First, wall brackets are attached to the wall, and then the evaporator slides onto the brackets. After the evaporator is installed, two bottom nuts must be installed on the recessed anchor studs.



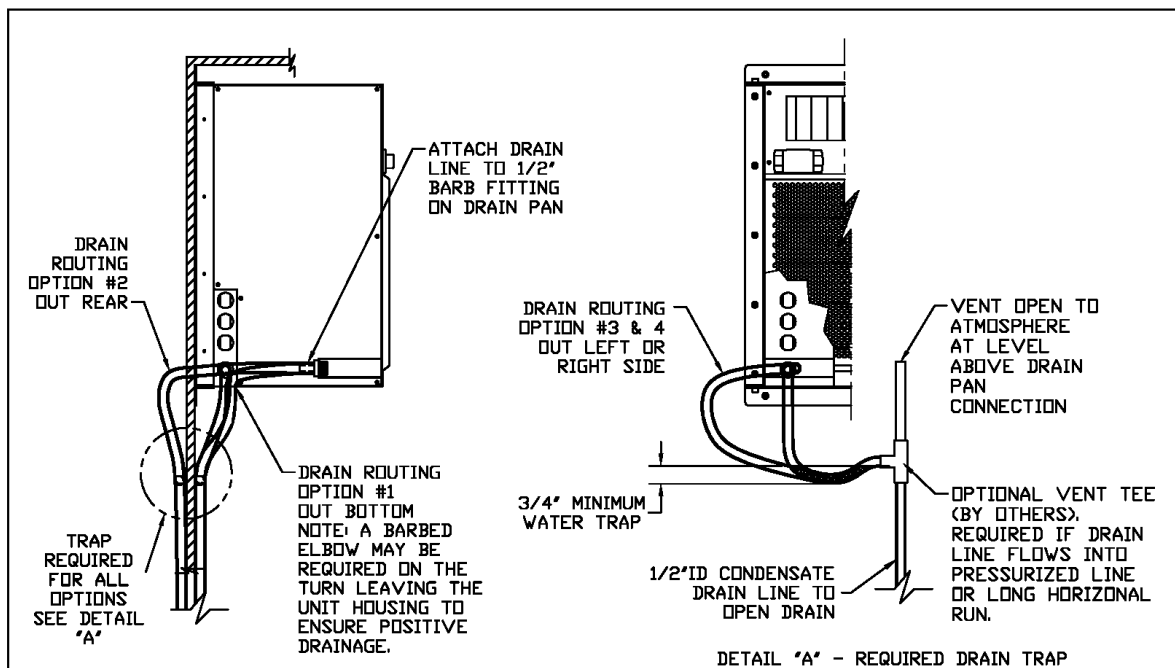


Condensate Drain Line

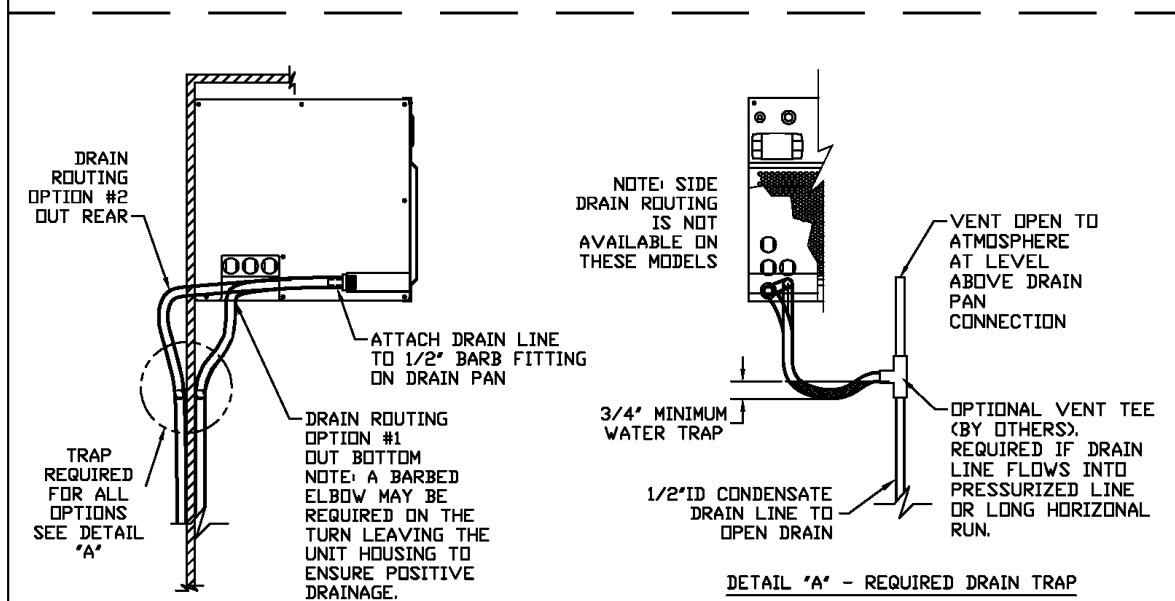
The condensate drain line must always have a downward pitch of 1/8" or more per foot. Within 12 inches from leaving the evaporator, the drain line requires a trap to overcome negative pressure. The entire trap must be below the evaporator.

In the trap, the drain line should drop, then rise, and then drop again into an open drain or a vent tee. Water should be filled in the section of the trap between the first drop and the rise. Please refer to the drawings below for further detail.

Before putting the unit into service, test for positive drainage by pouring water into the drain pan and observing flow through to the final drain.



3000S / 4000S EVAPORATOR DRAIN CONNECTION



3000Sh / 4000Sh / 6000S / 8000S EVAPORATOR DRAIN CONNECTION

1482_R03



Power Supply Requirements

Option A: Dual Power / Valve Control

| | EVAPORATOR | | | | | | | CONDENSING UNIT | | |
|--------------------|----------------------|------|-----|-----|-------------------|-----|-----|-----------------------|------|-------------------|
| SPLIT SYSTEM MODEL | FAN AMPS @ 115V/60HZ | | | | POWER INPUT WATTS | | | UNIT AMPS @ 115V/60HZ | | POWER INPUT WATTS |
| | MCA | HIGH | MED | LOW | HIGH | MED | LOW | MCA | LRA | |
| 3000S/Sh | 1.3 | 1.0 | 0.8 | 0.7 | 107 | 84 | 70 | 6.4 | 28.2 | 442 |
| 4000S/Sh | 1.7 | 1.4 | 1.1 | 1.0 | 159 | 122 | 107 | 9.2 | 40.0 | 591 |
| 6000S | 2.6 | 2.1 | 1.7 | 1.4 | 214 | 168 | 140 | 13.5 | 53.0 | 922 |
| 8000S | 3.5 | 2.8 | 2.2 | 1.9 | 318 | 244 | 214 | 15.4 | 51.0 | 1028 |

NOTES:

- 1) Separate 115V / 60HZ power supplies are required for the Evaporator and the Condensing Unit.
- 2) A 15 amp circuit breaker is recommended for all Evaporator models.
- 3) A 15 amp dedicated circuit breaker (non GFI) is recommended for 3000S/Sh and 4000S/Sh Condensing Units
- 4) A 20 amp dedicated circuit breaker (non GFI) is recommended for the 6000S Condensing Unit.
- 5) A 25 amp dedicated circuit breaker (non GFI) is recommended for the 8000S Condensing Unit.

Option B: Single Power / Electronic Control

| SINGLE 115V 60HZ POWER SUPPLY TO/FROM EVAPORATOR | | | | | |
|--|-------------|------|-------------------|------|------|
| SPLIT SYSTEM MODEL | SYSTEM AMPS | | POWER INPUT WATTS | | |
| | MCA | LRA | HIGH | MED | LOW |
| 3000S/Sh | 7.4 | 28.0 | 549 | 526 | 512 |
| 4000S/Sh | 10.6 | 40.0 | 750 | 713 | 698 |
| 6000S | 15.6 | 53.0 | 1136 | 1090 | 1062 |
| 8000S | 18.2 | 51.0 | 1346 | 1272 | 1242 |

NOTES:

- 1) A 15 amp dedicated circuit breaker (non GFI) is recommended for 3000S/Sh and 4000S/Sh systems.
- 2) A 25 amp dedicated circuit breaker (non GFI) is recommended for 6000S and 8000S systems.



System Wiring – Option A: Dual Power / Valve Control

Under this configuration the Evaporator and Condensing units are separately powered, and the Condensing unit turns on and off based on suction pressure, as follows:

- The Evaporator includes a factory installed liquid line solenoid valve (LLSV), which is controlled by the Evaporator temperature controller. The Condensing unit is controlled by a low pressure switch which reacts to the suction pressure and senses whether the LLSV is open or closed.
- When the Evaporator temperature set-point is reached and the Evaporator turns off, the LLSV closes, causing the system to pump down until the low pressure switch shuts off the Condensing unit.
- When the Evaporator turns on, the LLSV opens, causing the suction pressure to rise and activate the Condensing unit.

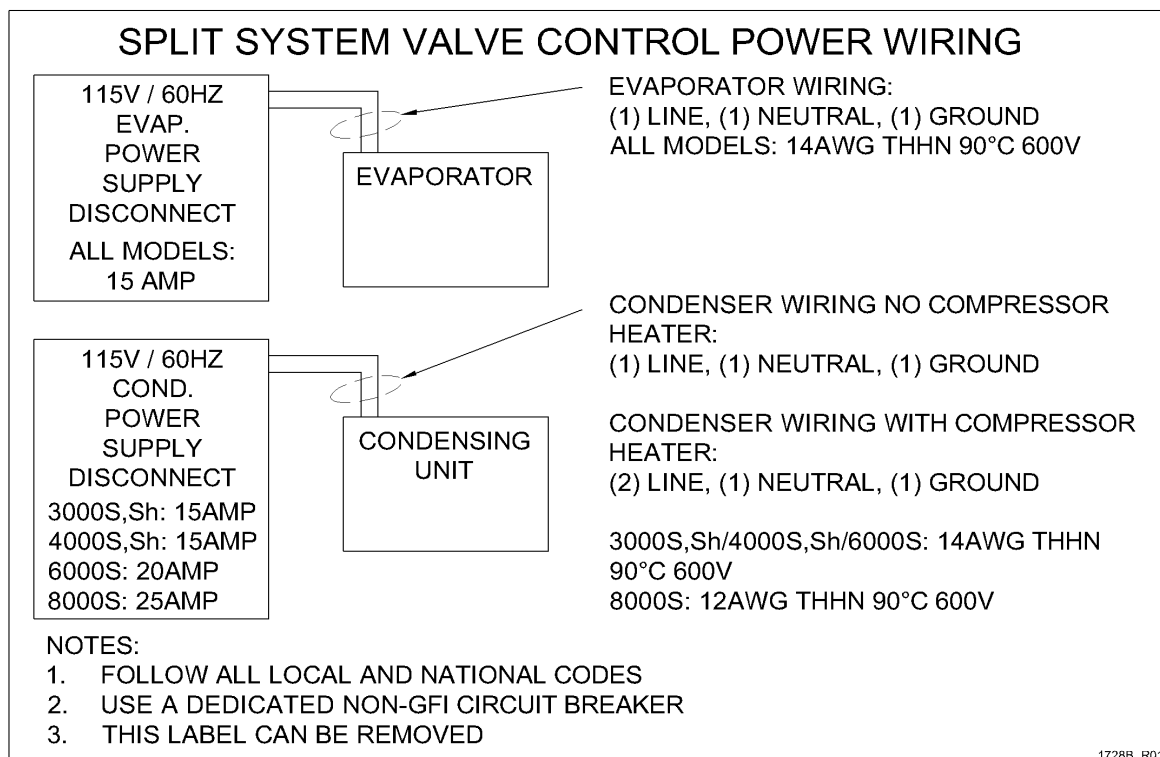
Field power wiring is connected to both the Evaporator and Condensing units, no interconnecting wiring is needed between the Evaporator and Condensing unit.

Evaporator Field Power Wiring:

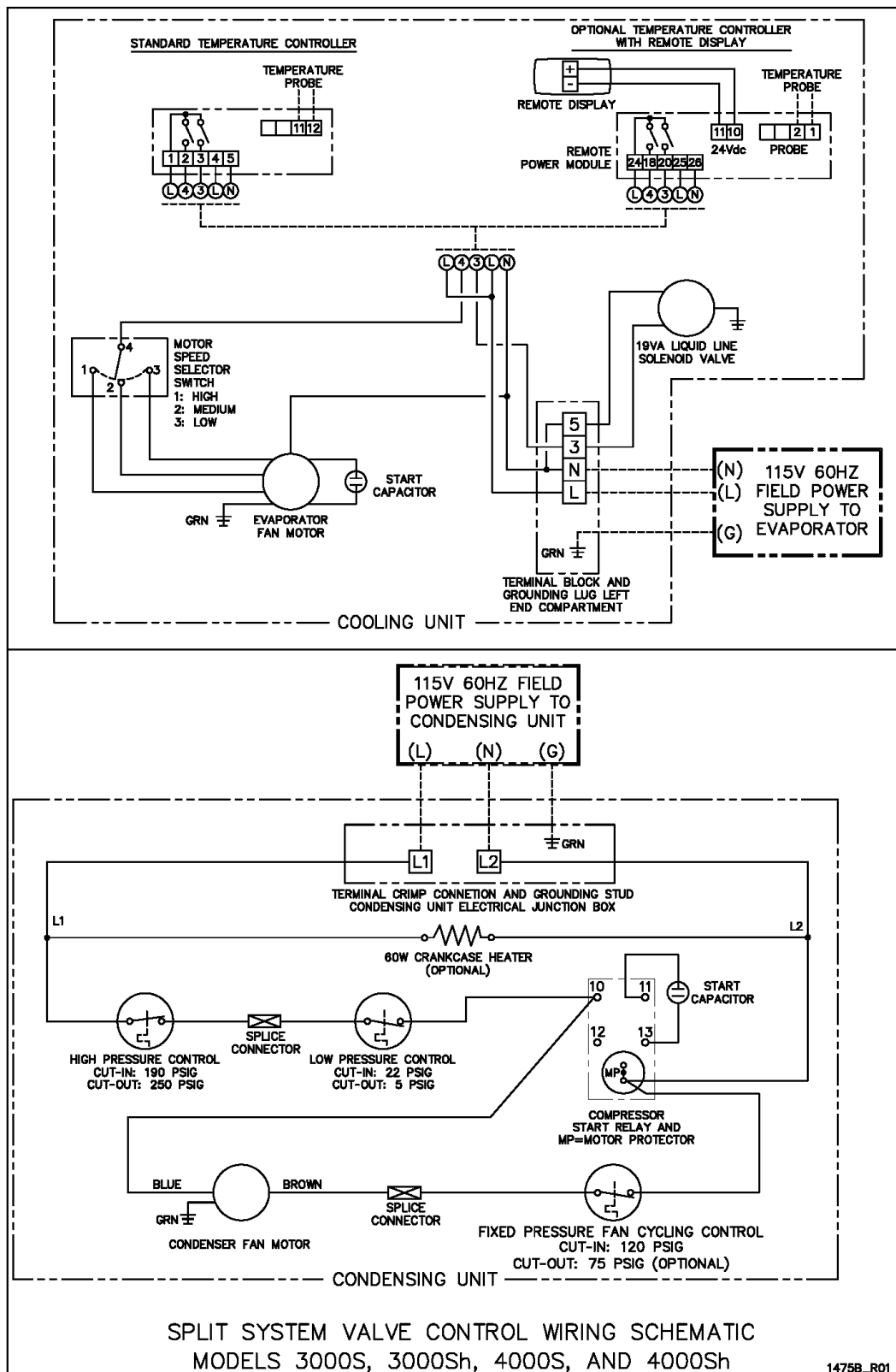
- ☐ Connect line lead to Evaporator terminal "L"
- ☐ Connect neutral lead to Evaporator terminal "N"
- ☐ Connect power ground to grounding lug on Evaporator

Condensing Unit Field Power Wiring:

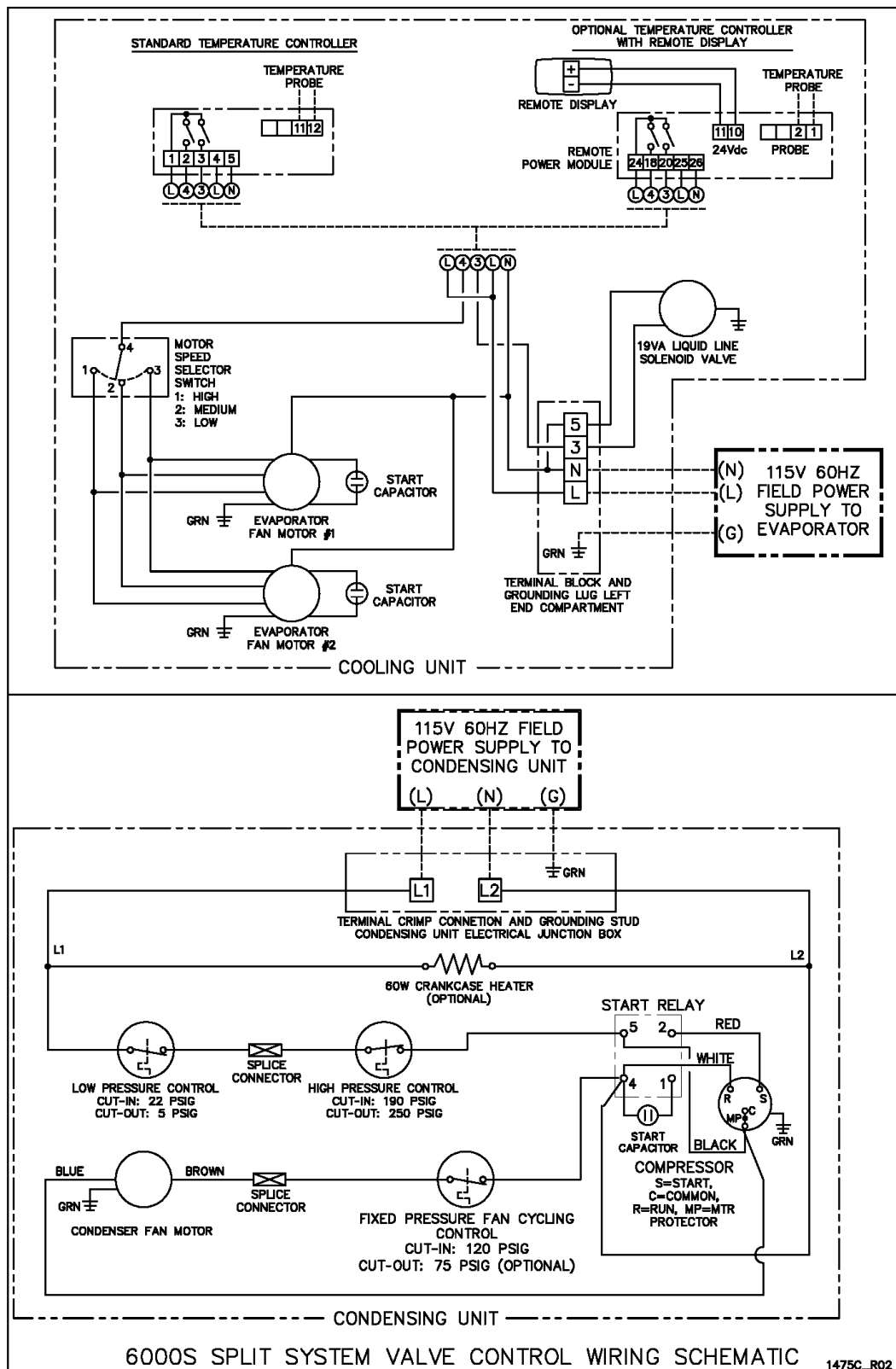
- ☐ Connect line lead to Condensing unit terminal "L1"
- ☐ Connect neutral lead to Condensing unit terminal "L2"
- ☐ Connect power ground to grounding lug on Condensing unit.



Wiring Diagrams – Option A: Dual Power / Valve Control Models 3000S, 3000Sh, 4000S, 4000Sh

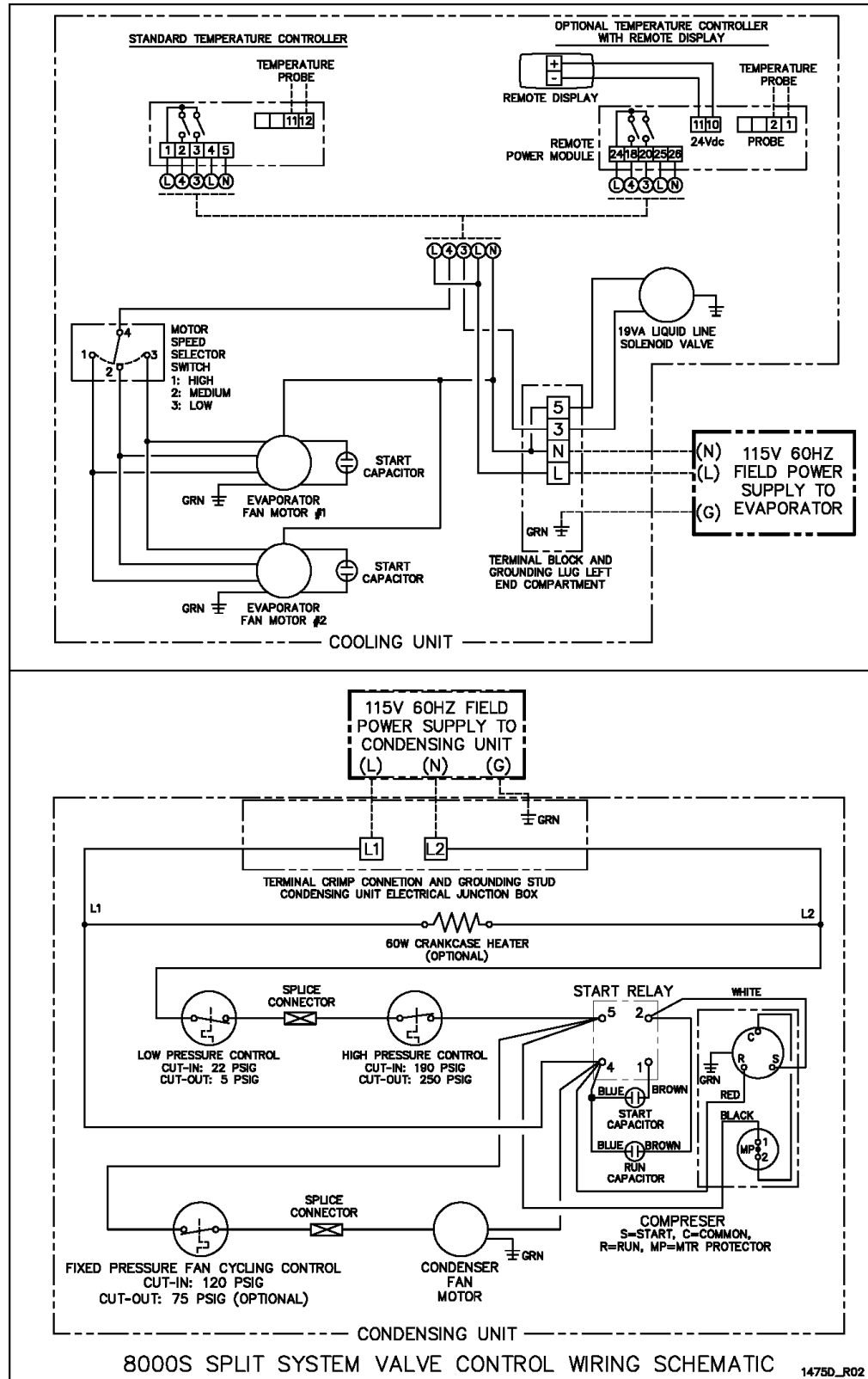


Wiring Diagrams – Option A: Dual Power / Valve Control Model 6000S





Wiring Diagrams – Option A: Dual Power / Valve Control Model 8000S





System Wiring – Option B: Single Power / Electronic Control

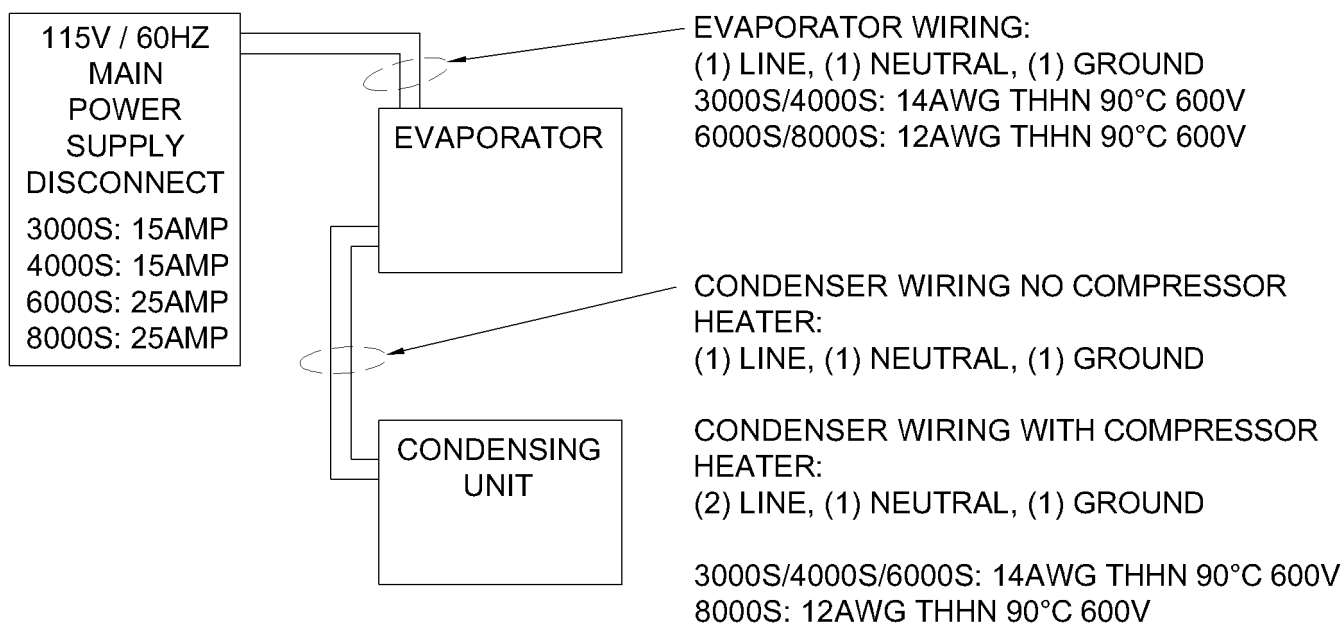
Under this configuration, only the Evaporator is powered by the Field Power Wiring, as follows:

- ☐ Connect line lead to Evaporator terminal "L"
- ☐ Connect neutral lead to Evaporator terminal "N"
- ☐ Connect power ground to grounding lug on Evaporator

The Condensing Unit is powered by connecting it to the Evaporator, as follows:

- "3" on the Evaporator to "L1" on the Condensing unit
- "5" on the Evaporator to "L2" on the Condensing unit
- Ground lug on the Evaporator to the grounding stud on the Condensing unit.
- With optional crankcase heater: Run a separate lead connecting "L" on Evaporator to "C" on Condensing Unit.

SPLIT SYSTEM ELECTRONIC CONTROL POWER WIRING



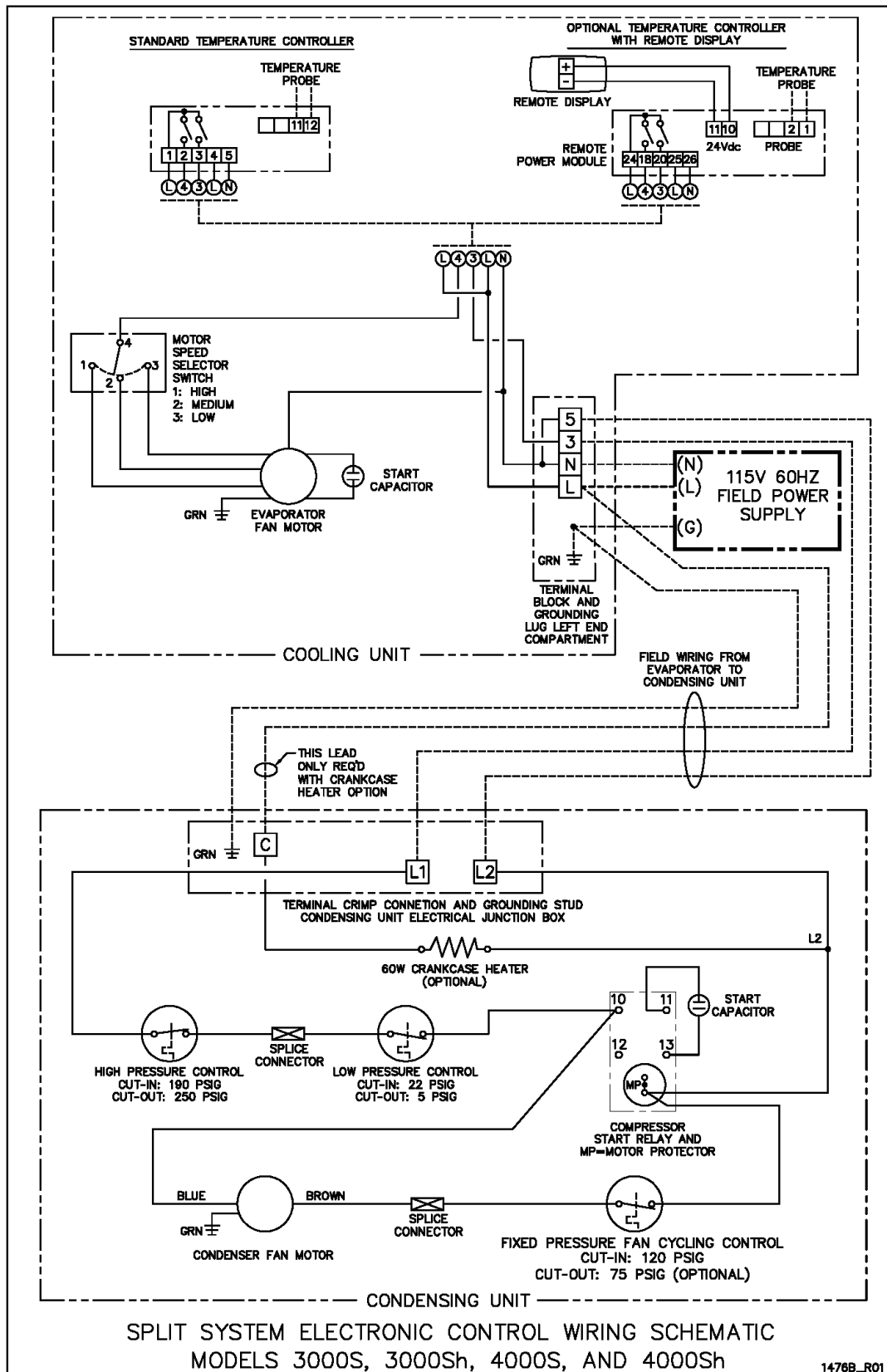
NOTES:

1. FOLLOW ALL LOCAL AND NATIONAL CODES
2. USE A DEDICATED NON-GFI CIRCUIT BREAKER
3. THIS LABEL CAN BE REMOVED

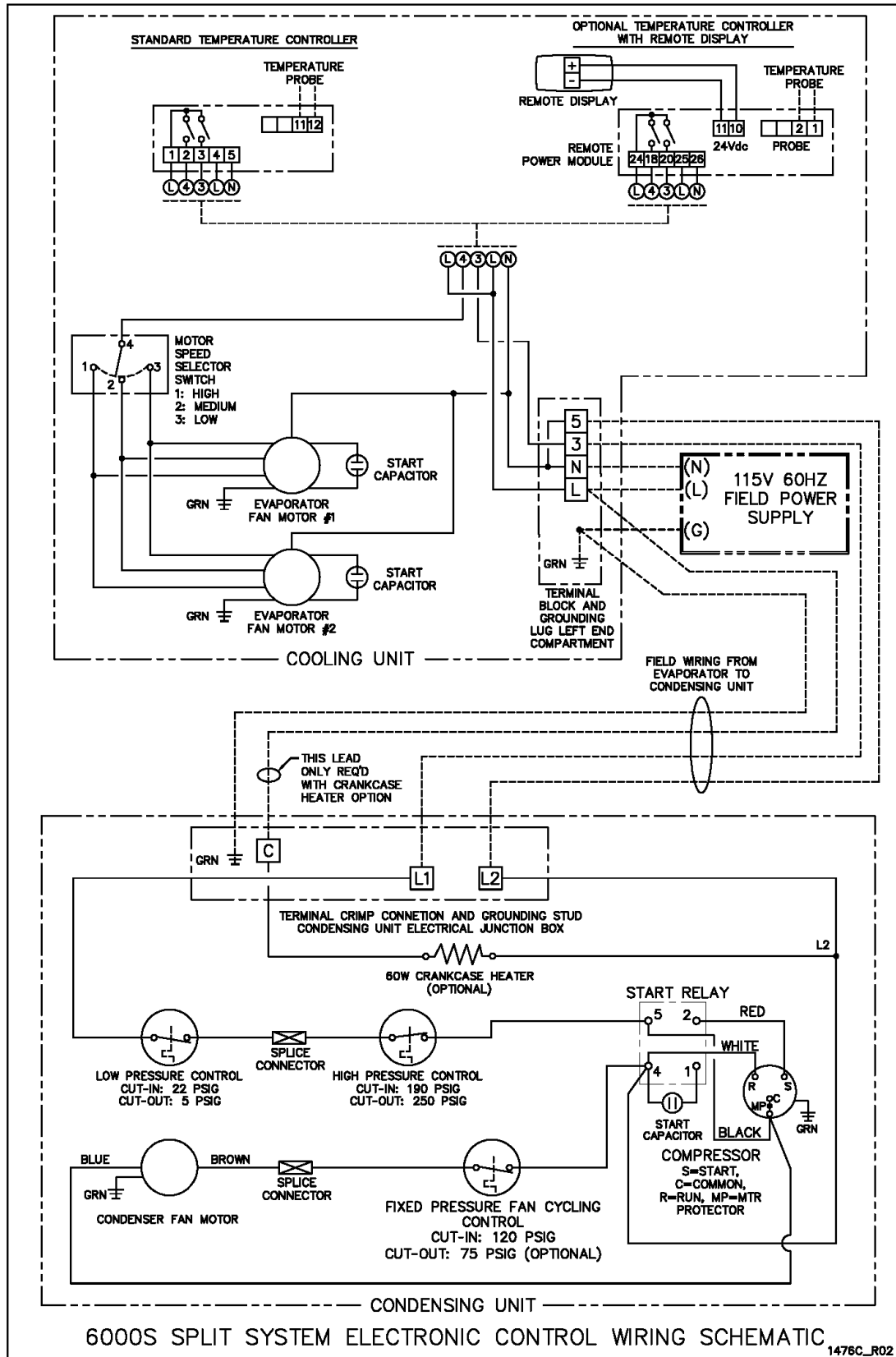
1728A_R00



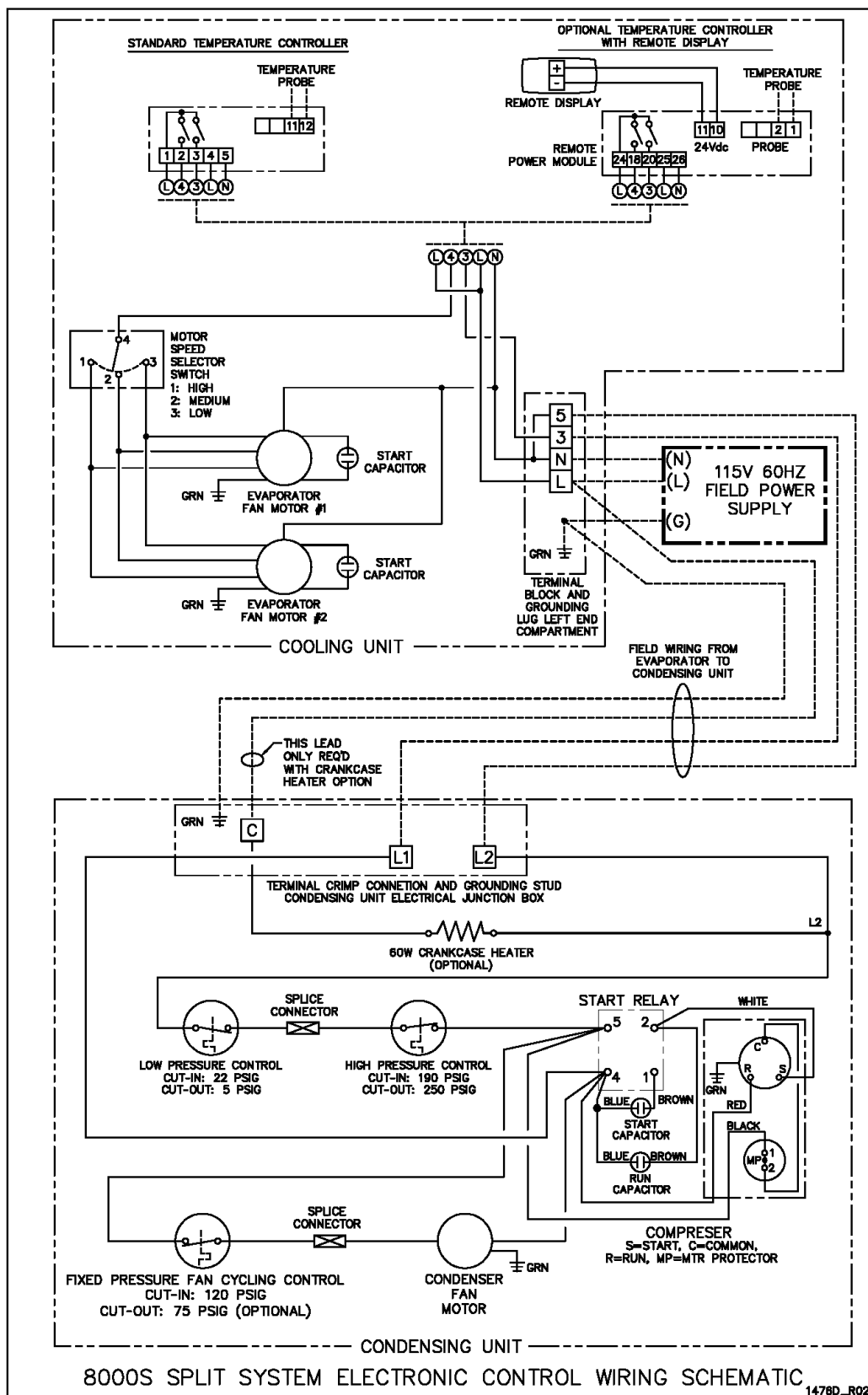
Wiring Diagram – Option B: Single Power / Electronic Control Models 3000S, 3000Sh, 4000S, 4000Sh



Wiring Diagram – Option B: Single Power / Electronic Control Models 6000S

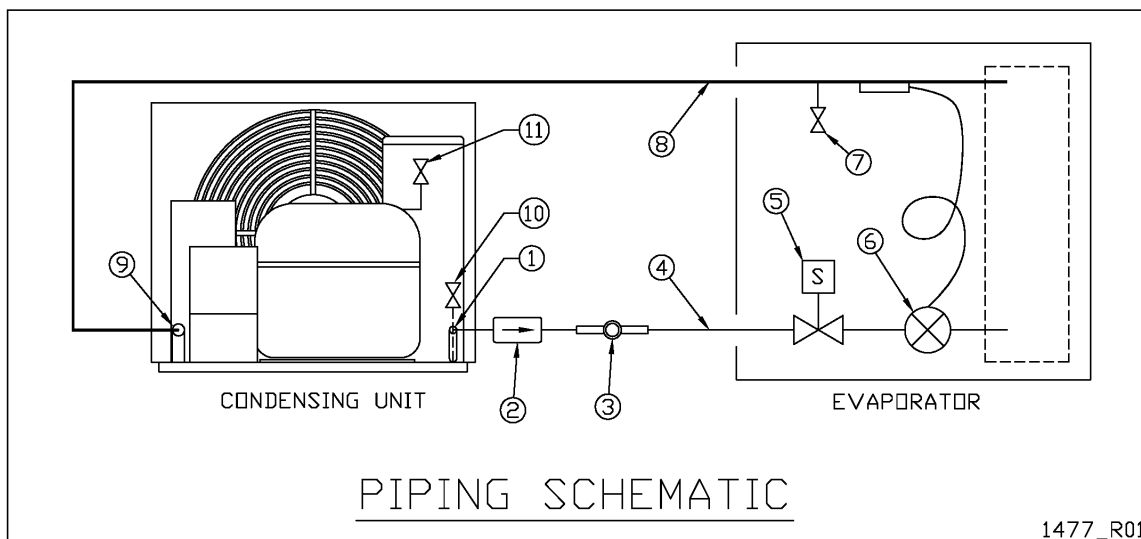


Wiring Diagram – Option B: Single Power / Electronic Control Models 8000S



Installing Refrigeration Lines

The Evaporator and Condensing units should be piped according to the following piping schematic:



Piping Legend

1. Liquid connection location.
2. Hermetic liquid line filter drier (shipped loose). Install with the directional flow arrow as shown.
3. Liquid line sight glass with moisture indicator (shipped loose).
4. Liquid line refrigeration piping in accordance with Line Sizing Chart.
5. Factory installed liquid line solenoid valve (normally closed) (Dual Power/Valve Control configurations only).
6. Factory installed thermostatic expansion valve. Bulb must be attached to a horizontal run of the suction line after brazing the field suction connection, and insulated with the supplied cork tape.
7. Factory installed 1/4" evaporator suction access valve.
8. Insulated suction line refrigeration piping (refer to Line Sizing Chart below).
9. Suction connection location.
10. Condensing unit 1/4" liquid access valve. The position of the access valve varies by model, trace the liquid line back from the connection through the receiver to the condenser coil bottom outlet to locate the valve.
11. Condensing unit 1/4" suction access valve located off a tee on the compressor shell process tube.



Line Sizing Chart

Refer to the Line Sizing Chart below for selecting the appropriate tubing size for the length of the piping run. Note that the recommended line size may not match the connection ports on the Condensing unit and the Evaporator. Refrigeration grade fittings must be supplied by the installing technician to make the necessary transitions. **Transitions should be made as close to the unit as possible.** Suction line routing must be designed to ensure oil return to the Condensing unit.

Split System Line Sizing Chart

| | | | Suction Line Size by Length ("ODS) | | |
|----------|--|--|------------------------------------|----------------------------|-----------------------------|
| Model | Liquid Line Size ("ODS) Up to 100 feet | Minimum Suction Line Insulation Thickness (in) | Up to 25 feet | Over 25 feet up to 50 feet | Over 50 feet up to 100 feet |
| 3000S/Sh | 1/4 | 1/2 | 1/2 | 1/2 | 1/2 |
| 4000S/Sh | 3/8 | 1/2 | 1/2 | 1/2 | 1/2 |
| 6000S | 3/8 | 1/2 | 1/2 | 5/8 | 5/8 |
| 8000S | 3/8 | 5/8 | 5/8 | 5/8 | 7/8 |

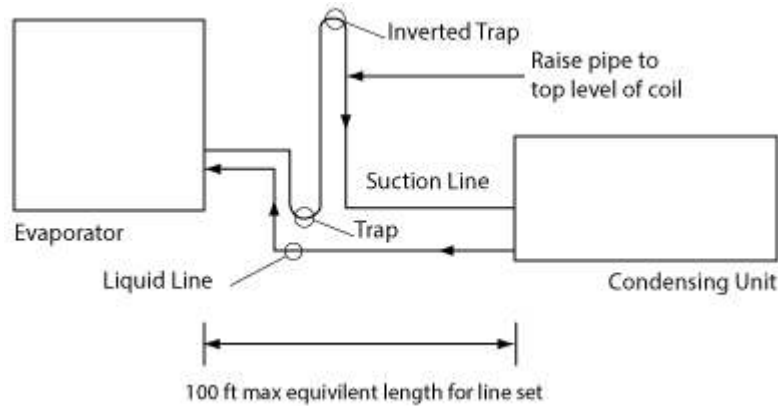
Notes:

- 1) Line lengths are expressed in equivalent feet = actual run length + fitting allowances.
- 2) Chart includes allowances for Fittings, Filter Drier, and Sight Glass.
- 3) Use only dehydrated refrigeration service tubing and refrigeration grade fittings.
- 4) Install refrigeration piping in accordance with local codes and ASHRAE guidelines.

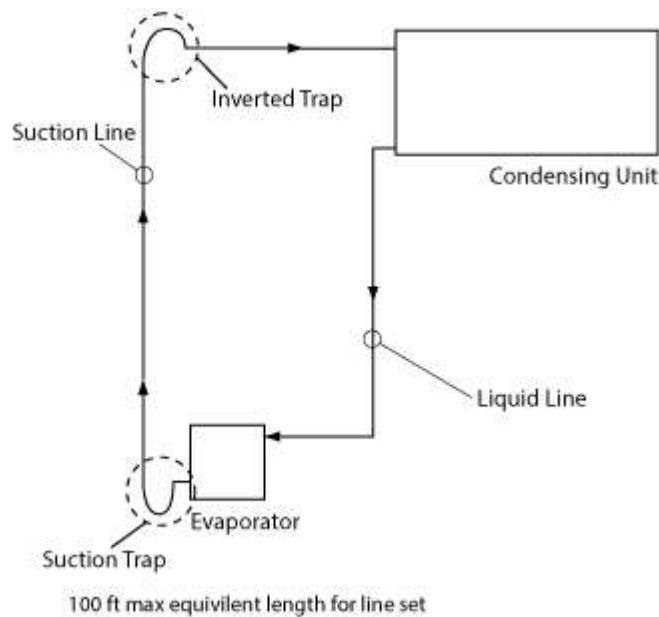
Vertical Piping Guidelines

Piping runs should be kept as short and compact as possible. Low-lying areas (oil "traps") where oil can accumulate should be avoided. Refer to the following guidelines with regards to the vertical placement of the evaporator and condensing units:

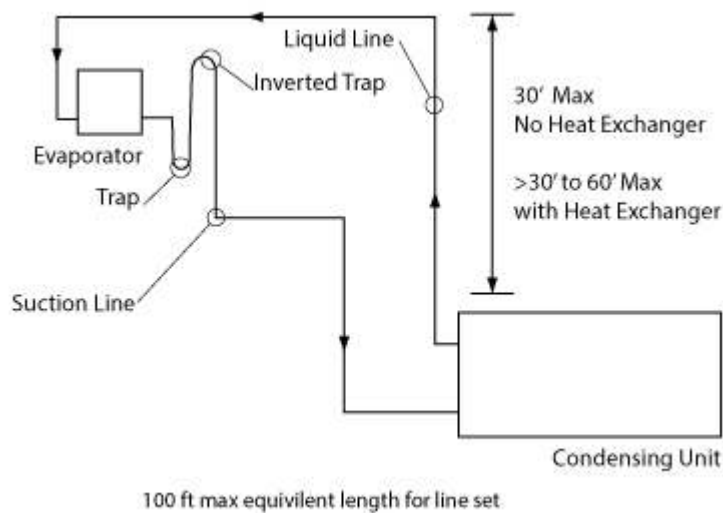
1. **When the evaporator and condensing unit are located on the same level,** pipe suction line with inverted trap as shown to prevent liquid migration to the compressor during the off cycle. Pitch the suction line **slightly downward** to the condensing unit:



2. **When the evaporator is located below the condensing unit,** a suction trap must be installed at the evaporator, and an inverted trap must be installed at the condensing unit, for proper oil return, as follows:



3. **When the evaporator is located above the condensing unit,** pipe suction line with inverted trap as shown to prevent liquid migration to the compressor during the off cycle. The vertical lift of the liquid line is limited to 30 feet. The lift may be increased to 60 feet if an optional liquid/suction Heat Exchanger is added to the field piping.



Evacuation, Leak Detection, and Charging

Important note: The condensing unit and evaporator are shipped with a nitrogen holding charge. Please verify positive pressure through the access valve prior to installation. If you cannot verify the holding charge, please contact Cellarpro at 707.794.8000.

Once the piping is installed, the following steps should be performed to ensure a dry and leak-free system:

1. The Condensing unit is pre-charged with compressor oil. To avoid moisture contamination of the oil, do not leave the system open to atmosphere for more than 15 minutes.
2. Dual Power Source / Valve Control Systems Only: Supply power to the Evaporator only - DO NOT connect power to the Condensing unit. Turn on the temperature controller, which will energize and open the liquid line solenoid valve. Verify the solenoid is powered as indicated by the compressor icon ("snowflake") on the temperature controller display.
3. Pressurize the system to a maximum of 150PSIG of dry nitrogen. It is important to add nitrogen through both the high and low side access valves on the condensing unit to make sure the system is fully pressurized. Mark the pressure and hold for a minimum of 1 hour. If the pressure holds, proceed to the next step, otherwise locate and repair the leak and repeat this step.
4. **Evacuate the system to a minimum of 500 microns.** It is important to pull a vacuum through both the high and low side access valves on the condensing unit to make sure the system is fully evacuated. If the vacuum is achieved, proceed to the next step, otherwise locate and repair the leak and repeat from step 4.



5. Disconnect the vacuum pump, but **leave the system under vacuum**. Use a charging scale to accurately weigh in the refrigerant. Charge liquid R-134a refrigerant through the **liquid service valve** according to the charge pounds indicated in the "System R-134a Charge Guidelines" chart below. Additional refrigerant may need to be added, using the steps outlined below. **DO NOT USE REFRIGERANT WITH ADDITIVES.**
6. **Important: The most common causes of compressor failure are refrigerant overcharge, adding liquid refrigerant through the suction access valve, and cold compressor starts.** If your system is equipped with a compressor heater, make sure this is wired to be energized even when the system is idle. If starting up the system in a cold ambient, or if the system has been sitting idle without the compressor heater energized for more than 24 hours, it is critical to warm the bottom shell of the compressor above the ambient temperature for 30 minutes to drive excess refrigerant out of the compressor oil.
7. Connect power to the Evaporator and Condensing unit, and activate the system. **IMPORTANT: If the system does not power up after the 3 minute start up delay, verify field wiring according to the appropriate wiring diagram. If correct, disconnect power from the system and contact Cellarpro at 707.794.8000.**

Measure pressures and temperatures to verify the system is within normal operating limits as indicated on the Split System Data Sheet. A loose copy of the Data Sheet is provided with the unit, and an additional copy is included at the end of this manual. The condensing pressure must be above 105 PSIG when taking these measurements. In a low ambient environment, it may be necessary to temporarily block off the condenser air intake to force the condensing pressure higher. Do not run the system if the suction superheat at the condensing unit is below 20°F.

8. It may be necessary to slightly adjust the charge amount after weighing in the recommended initial charge. 1) Not enough refrigerant: If the Evaporator is not providing enough cooling, the system may be undercharged. If liquid subcooling is below 10°F and the suction superheat is well above the minimum of 20°F, slowly add vapor refrigerant through the suction service valve until the subcooling is within specifications. 2) Too much refrigerant: If the suction superheat is below 20°F, remove refrigerant until the superheat is above this minimum limit.
9. (Optional) It should not be necessary to manually adjust the thermostatic expansion valve superheat from the factory default setting. However if desired, the superheat may be adjusted as follows: 1) Remove the cork tape insulation from the expansion valve body to locate the cap on the superheat stem, and unscrew the cap using a 5/32 in. Allen wrench. 2) Using a 5/32 in. Allen wrench, locate the setting spindle inside the superheat stem and make superheat adjustments ¼ turn at a time (¼ turn≈1°F). Turning clockwise increases superheat. Turning counter-clockwise decreases superheat. The target superheat at the evaporator is 10°F +/- 2°F. 3) Reinstall the cap and cork tape insulation.



10. Confirm that the compressor, condenser fan, and evaporator fan(s) are energized. Allow the system to balance for 30 minutes, then record all readings on the Data Sheet and submit to CellarPro for warranty activation review.
11. Observe that the condensing unit turns on when the “snowflake” icon on the temperature display is lit solid (not blinking), and turns off when the “snowflake” icon turns off. It may be necessary to temporarily raise the set point to force the unit to cycle off. If the condensing unit does not cycle on/off in conjunction with the “snowflake” icon, please contact the factory for assistance.

Installation Tips and Guidelines

- Make sure all electrical connections are secure.
- Inspect Evaporator and Condensing unit fans to confirm airflow. There shouldn't be any excessive vibration, noise or obstructions to airflow.
- Observe system pressures and temperatures during charging and initial operation and keep note of them as they will be required for the Service and Support Data Sheet which initiates the warranty.
- Do not overcharge or use refrigerant with additives.
- Remember that bubbles in a sight glass may be caused by a restriction as well as a shortage of refrigerant. A properly charged system may still have small bubbles visible in the sight glass, so use actual superheat and subcooling readings to charge the system.
- Do not leave unit unattended until the system has reached normal operating conditions, and the system has been observed properly cycling on/off to the desired set point and differential.
- Make sure all access valve caps are in place and tight.



System R-134a Charge Guidelines

| System R-134a Charge Guidelines | | | | |
|---------------------------------|--------------------------------|----------|-------|-------|
| Actual Line Length | System Charge (lbs) by Model # | | | |
| (ft) | 3000S/Sh | 4000S/Sh | 6000S | 8000S |
| 5 | 1.38 | 1.65 | 2.31 | 3.71 |
| 10 | 1.46 | 1.85 | 2.51 | 3.92 |
| 15 | 1.54 | 2.05 | 2.71 | 4.12 |
| 20 | 1.61 | 2.25 | 2.93 | 4.32 |
| 25 | 1.69 | 2.45 | 3.13 | 4.53 |
| 30 | 1.77 | 2.65 | 3.34 | 4.73 |
| 35 | 1.85 | 2.85 | 3.54 | 4.93 |
| 40 | 1.93 | 3.05 | 3.74 | 5.14 |
| 45 | 2.01 | 3.25 | 3.95 | 5.44 |
| 50 | 2.09 | 3.45 | 4.15 | 5.65 |
| 55 | 2.16 | 3.65 | 4.36 | 5.86 |
| 60 | 2.24 | 3.85 | 4.56 | 6.08 |
| 65 | 2.32 | 4.05 | 4.76 | 6.29 |
| 70 | 2.40 | 4.25 | 4.97 | 6.51 |
| 75 | 2.48 | 4.45 | 5.17 | 6.72 |
| 80 | 2.56 | 4.65 | 5.37 | 6.93 |
| 85 | 2.64 | 4.85 | 5.58 | 7.15 |
| 90 | 2.71 | 5.05 | 5.78 | 7.36 |

Note:

- 1) Actual charge may vary - follow charging instructions detailed under Item 6 in the section titled **Evacuation, Leak Detection, and Charging** (above).
- 2) Lines sized according to Line Sizing Chart assuming line length plus 10 equivalent feet for fittings losses.



We also offer a remote control panel kit that can be installed remotely (up to 10 feet) from the cooling unit, either inside or outside the cellar, and a bottle probe (10 foot cord) that can be plugged into the cooling unit.

Summary

Keep in mind the following guidelines before purchasing a wine cooling unit from CellarPro:

- If the cellar is too large for the cooling unit, the cooling unit will be unable to maintain proper, even temperatures inside the cellar.
- Without proper insulation and an airtight environment, the cooling unit effectively will become a de-humidifier and potentially will produce buckets of water.
- Without access to cool air, either because of improper ventilation or because the environments is too hot, the cooling unit will be unable to maintain proper temperatures inside the cellar.
- When the cooling unit will be exposed to temperatures below 40°F, a compressor heater must be added to protect the compressor.

Under any of the above conditions, the unit's internal components may become damaged, the expected useful life of the wine cooling unit may be adversely affected, and the product's warranty may become null and void.



IV. Operating Instructions

Overview

CellarPro cooling units are designed to maintain optimal conditions for wine storage and aging. These conditions include steady, cool temperatures, high humidity, minimal vibration and light, and clean air.

The settings on your CellarPro cooling unit have been preset and optimized by the factory. Before changing any settings below, we recommend waiting 14 days to allow the cooling unit to “break in.”

The cooling unit is designed to cool the cellar gently without stripping moisture out of the cellar environment. Therefore, it is not uncommon for the cooling unit to run nonstop for up to a week initially, depending on the temperature inside the cellar, the size of the cellar, and the temperature of the ambient environment. Once the cellar has reached equilibrium, it is normal for the cooling unit to run as much as 75 percent of the time.

CellarPro cooling units are designed to maintain optimal temperatures for ***storing and aging*** fine wine. CellarPro cooling units are not designed to maintain temperatures for ***serving*** wine, which tend to be much colder than storage temperatures, especially serving temperatures for white and sparkling wines.

CellarPro cooling units must be used, stored, moved and/or shipped in the upright position. Be careful when turning the unit on its side. The unit NEVER should be turned upside down.

Temperature Control

CellarPro cooling units are designed to turn “on” when the air temperature passing over the evaporator coils inside the cellar exceeds the **Minimum Set Point** plus the **Temperature Differential**, and turn “off” when the temperature drops below the **Minimum Set Point**. For example, if the Minimum Set Point is 58°F and the Temperature Differential is 4°F, the cooling unit will turn on when the temperature rises above 62°F inside the cellar, and it will turn off when the temperature falls below 58°F. In this example, the average temperature inside the cellar will be 60°F.

Basic Operation

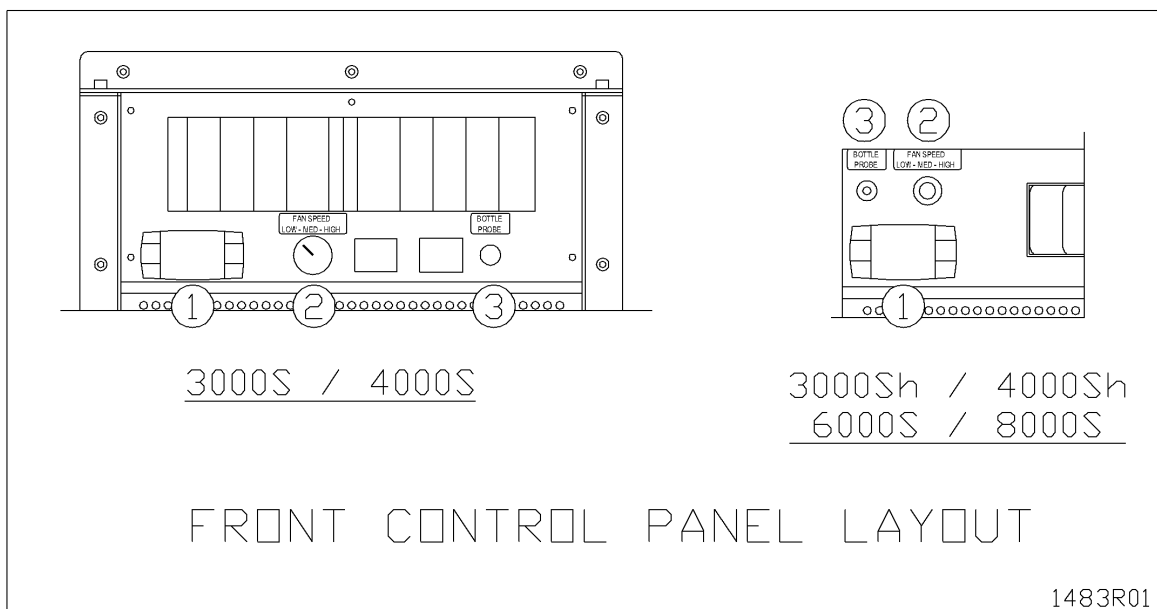
The cooling system is programmed with a **3-Minute Delay at Startup** to protect its internal components. The temperature inside the cellar can be increased or decreased by changing the Minimum Set Point as described later in this chapter. If the cooling unit runs too much, you can raise the Minimum Set Point to reduce the cycle “on” time. Most wine collectors store their wine in the range of 55 - 60°F.

CellarPro cooling units are designed to maintain appropriate levels of humidity, ranging from 50 to 70 percent, inside wine cellars. In order to increase or decrease



humidity inside the cellar, the **Fon** setting can be changed as described in the “Advanced Operation” section later in this chapter.

Switch Instructions

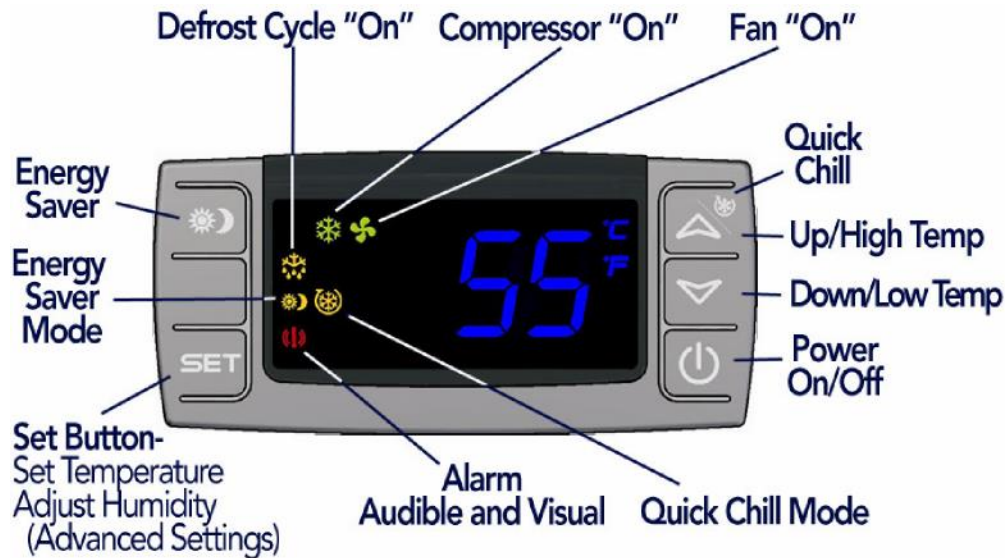


(1) Control Panel: Maintains desired cellar environment. Factory settings are optimized for peak performance. Controller is described in detail in the following section.

(2) Fan Speed Selector Switch (Low/Med/High): The cooling unit fans operate on 3 speed settings: Low, Medium, and High. For optimum sound and energy efficiency, select the lowest fan speed that will maintain the desired cellar temperature. High speed is recommended for initial cellar pull down, **extreme** temperature conditions and ducted installations.

(3) Bottle Probe Jack (Bottle Probe): Plug in the remote bottle probe (sold separately) to control the cellar by liquid temperature rather than air temperature inside the cellar. Disconnecting the probe will automatically return the control to air temperature. When using a bottle probe, the **Temperature Differential** will need to be adjusted to 1 as shown in the “Advanced Operation” instructions below.

Control Panel Instructions*



Digital Display



The temperature displayed on the control indicates the real-time air temperature as measured by Probe 1 (P1) located behind the front grill of the cooling unit.

Power "On" / "Off"



Press "Power On/Off" to turn the unit on and off.

When the "Compressor On" indicator light is on, the Compressor is running.

When the "Fan On" indicator light is on, the Fan is running.

The cooling system is programmed with a **3-Minute Delay at Startup** to protect its internal components.

* Remote display/control instructions are included following this section.

Up and Down Buttons

To view the **“High Temp”** recorded by the cooling unit, press the “Up” button once.



To view the **“Low Temp”** recorded by the cooling unit, press the “Down” button once.

To **reset** the “High Temp” or “Low Temp”, press the “Set” button for three seconds while “Hi” or “Lo” is displayed. “RST” will blink three times to indicate confirmation.

Set Button



The cooling unit is factory preset with a Minimum Set Point of 58°F and a Temperature Differential of 4°F. This means that the cooling unit will turn on when the display rises above 62°F (58°F + 4°F), and turn off when the display falls below 58°F. In this example, the average temperature inside the cellar will be 60°F.

To view the Minimum Set Point, press the “Set” button for one second.

To change the Minimum Set Point,

- Press the “Set” button for three seconds until °F blinks
- Press “Up” or “Down” button
- Press “Set” button to confirm

The “Set” temperature will blink three times to indicate confirmation

The recommended Minimum Set Point range is 53 - 60°F. To change the Temperature Differential, see “Advanced Operation” later in this chapter.

Energy Saver Button



To activate and deactivate the “Energy Saver” mode, press the “Energy Saver” button.

The “Energy Saver” indicator light will turn on when the cooling unit is in “Energy Saver” mode.

In “Energy Saver” mode, the Minimum Set Point increases 4°F and the Temperature Differential is unchanged.

Quick Chill Button



To activate the “Quick Chill” mode, press the “Up” / “Quick Chill” button for three seconds.

To deactivate “Quick Chill”, press “Quick Chill” button for three seconds again.

The “Quick Chill” indicator light will turn on when the cooling unit is in “Quick Chill” mode.

In the “Quick Chill” mode, the cooling unit will run continuously for 6 hours (or until the intake temperature registers 50°F). This mode is useful after loading “warm” bottles in a cellar

Remote Control / Display Instructions



Digital Display

The temperature displayed on the control is red instead of blue.

Quick Chill Button



Button

To activate the "Quick Chill" mode, press the "Up" button for three seconds



Icon

To deactivate "Quick Chill", press the "Up" button for three seconds again

The "Quick Chill" indicator (Row 3) light will turn on when the cooling unit is in "Quick Chill" mode,

In the "Quick Chill" mode, the cooling unit will run continuously for 6 hours (or until the unit reaches set point.). This mode is useful after loading "warm" bottles in the cabinet.

Auto Defrost Mode

The cooling unit has a factory default defrost cycle that initiates every 16 hours for 20 minutes. When the cooling unit is in auto-defrost mode, the "Defrost" Indicator light (Top row) will turn on, and the evaporator fan will run.

Manual Defrost



Hold the defrost button in for 3 seconds to initiate a manual defrost. The "Defrost" Indicator light (Top row) will turn on for a 20 minute defrost cycle.

Light



The light button function is disabled, however pressing it will turn on/off the light indicator on the display (2nd row).

Energy Saver

The remote display is not configured with an Energy Saver mode. The set point can be raised manually for periods where energy savings is desired.



Advanced Operation

CellarPro cooling systems can be programmed with advanced settings to achieve more control over conditions inside the cellar. Conditions like humidity, the Temperature Differential, and alarm settings all can be modified for custom applications. To access the advanced settings, do the following:

Press the “Set” button and the “Down” button together at the same time, and hold for three seconds. Then, use the “Up” or “Down” button to scroll to the following screen:



HUMIDITY: The factory preset for this setting is “3”.

If the humidity inside the cellar is too low, press the “Set” button, then use the “Up” button until the desired setting is reached. The recommended range for this setting is 0-6.



TEMPERATURE DIFFERENTIAL: The factory preset for this setting is “4”.

This setting determines the Temperature Differential and therefore the temperature at which the cooling unit will cycle on. The recommended range for this setting is 4 or 5.



HIGH TEMPERATURE ALARM: The factory preset for this setting is “70”.

This setting designates the High temperature inside the cellar at which the alarm is triggered. We recommend leaving this setting at the factory preset.



LOW TEMPERATURE ALARM: The factory preset for this setting is “45”.

This setting designates the Low temperature inside the cellar at which the alarm is triggered. We recommend leaving this setting at the factory preset.



ENERGY SAVINGS MODE DIFFERENTIAL: The factory preset for this setting is “4”.

This setting controls the Temperature Differential for the Energy Savings Mode. The recommended range for this setting is 2-4.

V. Troubleshooting

Improper installation, inadequate insulation, or a cellar that is too large will cause the cooling unit to run continuously and be difficult to troubleshoot.

The cooling unit is designed to turn on when the air temperature in the cellar rises ABOVE the Minimum Set Point + Temperature Differential, and turn off when the air temperature falls below the Minimum Set Point. For example, if the Minimum Set Point is 58°F and the Temperature Differential is 4°F, the cooling unit will turn above 62°F and turn off below 58° F. In this example, the average temperature inside the cellar will be 60°F.

Cooling Unit Runs Constantly

When bottles are first loaded in the cellar, the cooling unit will run continuously (even up to a week) until the temperature inside the cellar falls below the Set Point.

Hot weather conditions, insufficient ventilation and/or dirty condenser filters may cause the cooling unit to run continuously. To reduce cycle times,

1. Remove any obstructions to air flow to or from the unit
2. Check to make sure the condenser filter is clean
3. Increase the supply of cool air to the space outside the condenser coils, using a fan, ducting or an exhaust system to remove heat from the space.
4. Raise the Minimum Set Point on the cooling unit

Cooling Unit Is Dripping

The cooling unit is designed to remove excess moisture from inside the cellar, which collects in the drip pan of the cooling unit and is evaporated by the condensate heater. Excess moisture can occur when the cooling unit runs constantly, when the Minimum Set Point is too low and/or when the cellar doesn't have a good seal from the outside environment. To eliminate overflow, do the following:

1. Ensure the condensate overflow drain line is not blocked, that the drain line is trapped and the trap is filled with water.
2. Ensure there is a downward pitch in the drain line from the outlet at the unit drain pan to the final drain. It may be necessary to install a trap vent as detailed in the Condensate Drain Line installation section.
3. Check that the cellar has airtight seals, including the door(s), light fixtures, and all walls, ceiling and floor.
4. Raise the Minimum Set Point of the cooling unit.

The Cooling Unit Won't Turn On

The cooling system is programmed with a **3-Minute Delay at Startup** to protect its internal components.



Other Troubleshooting Issues

| Issue | Possible Causes | Potential Solutions |
|---|---|---|
| <p>No cooling: no refrigerant flow.</p> <p>If the "snowflake" icon is illuminated on the temperature display control, the compressor should be running.</p> | <p>Electronic Control: No power to evaporator Valve control: no power to liquid solenoid valve coil</p> | Power supply to Evaporator interrupted. Restore power. |
| | | (Valve control only) Power supply to solenoid coil interrupted: loose wire. Inspect for loose fan wiring and reconnect. |
| | Solenoid coil failure (Valve control option only) | When the Evaporator is powered on and off, a distinct "click" should be heard indicating the opening/closing of the solenoid valve. If not, the solenoid coil may need to be replaced. Consult factory. |
| | No power to compressor | Power supply to Condensing Unit interrupted. Restore power. |
| | | Check for loose wires and reconnect. |
| | | Low pressure switch is open: On Valve control systems, make sure solenoid is energized. Jumper out switch to check for a faulty switch, and replace if necessary. Note that in installations below 0°F this switch may remain open. Consult factory. |
| | | High pressure switch is open: refer to the "High Pressure Safety Shutdown" section. |
| | High pressure safety shutdown / high discharge pressure | Locate and correct source of high condensing head pressure: |
| | | Refrigeration line blockage |
| | | Condenser fan not operating in ambient temperatures above 90°F. Ensure that there is power to the Condensing Unit and verify the fan cycling control settings. Replace condenser fan and fan cycling control if necessary. |
| | | Insufficient ventilation: reference Condensing Unit installation guidelines for proper placement and ambient temperature requirements. Correct to ensure adequate air ventilation to and from the Condensing Unit. Improper refrigerant charge: inspect for over-charged system or non-condensables in system. |



| Issues | Possible Causes | Potential Solutions |
|--|---|--|
| (Cont.) No cooling: no refrigerant flow. If the "snowflake" icon is illuminated on the temperature display control, the compressor should be running. | (Cont.) High pressure safety shutdown / high discharge pressure | Dirty or obstructed condenser coil: clean and remove all obstructions to airflow. |
| | Intermittent power to compressor | Check for loose wires and secure. |
| | | Compressor cycling on internal thermal overload protection. Replace start capacitor/relay assembly |
| | | Compressor cycling on high pressure - see "High pressure safety shutdown" section. |
| No cooling: Evaporator fan not blowing. If the "fan" icon is illuminated on the temperature display control, the fan should be blowing air. | No power to fan(s) | Faulty compressor. Consult factory. |
| | | Power supply to Evaporator interrupted. Restore power. |
| | | Power supply to fan interrupted: loose wire. Inspect for loose fan wiring and reconnect. |
| | Fan obstructed | Fan capacitor: check for loose wires or out of spec capacitance. Reconnect loose wires or replace capacitor(s). |
| | | With power to unit disconnected, check the rotation of the blower fan. If fan does not spin freely, inspect for and remove obstructions. If no obstructions are found, the fan may need to be replaced. Consult factory. |
| | | Fan short cycling: Make sure all housing panels are attached to the unit. Replace missing panels. |
| Iced coil | Temperature displayed is higher than actual cellar temperature | Coil is blocked with ice. Refer to the "Iced coil" section. |
| | | If using a bottle probe, check placement and compare to actual cellar temp. Relocate probe if necessary to better correlate to actual cellar temperature. Probe fault: check for loose connections if splices were added in the field. Moisture in bottle probe jack: Can cause high readings, consult factory for solution. |



| Issues | Possible Causes | Possible Solutions |
|---------------------------------|---|---|
| (Cont.) Iced Coil | Low refrigerant charge | System charged incorrectly. Review process and correct. |
| | | Leak in system. Find and repair leak, recharge system. |
| | Mal-functioning thermostatic expansion valve. | Incorrect superheat setting: determine superheat and adjust. If expansion valve is faulty, replace. |
| | | Expansion valve bulb not located correctly - review installation instructions and correct. |
| | | Liquid flashing at the expansion valve inlet. See "High liquid line pressure drop" section. |
| | Condensing unit never shuts off | System is wired incorrectly. Locate correct wiring diagram for "Electronic" or "Valve" controlled system, trace wiring and correct. |
| | | If a "Valve" control system, the low pressure switch may have failed closed. Check switch and replace if necessary. |
| | No airflow | See "Evaporator fan not blowing" section |
| Insufficient liquid sub-cooling | Low refrigerant charge | System charged incorrectly. Review process and correct. |
| | | Leak in system. Find and repair leak, recharge system. |
| | High liquid line pressure drop | Check for plugged filter drier and replace if necessary. |
| | | Inspect pipe routing for proper piping practices and correct. |
| | | Liquid line picking up too much ambient heat - may need to insulate. |



Maintenance

The condenser coils on the Condensing unit will collect dust, dirt and lint over time. If the condenser coils become clogged, the cooling unit will not have proper airflow and its performance and longevity will be compromised. The condenser coils themselves also can be cleaned with a vacuum cleaner – ideally with a brush attachment to loosen dust caught between the fins.

Alarms

The cooling unit has both an audible notification and a visual alarm indicator (shown in “red” on the control panel) that are activated when an alarm is triggered. **Please note:** the temperature alarms (HA and LA) are disabled during the first 23 hours of operation after the cooling unit is plugged in and/or turned on.

The control panel also will flash a code for each alarm, as follows:

| Alarm | What it means | What to do |
|-------|--|--|
| P1 | Probe 1, which senses the temperature inside the cellar and controls the on/off cycles of the cooling unit, has failed | The cooling unit enters a timed auto-cycle mode until Probe 1 is repaired or replaced. In this mode, the cooling unit will turn on for 12 minutes and off for 8 minutes. Please call CellarPro at 877.726.8496 to repair or replace Probe 1 |
| HA | The temperature inside the cellar is too warm (above 70°F for more than 1 hour) | Check if the cellar has a leak Check if door was left open Lower the ambient temperatures |
| LA | The temperature of the cellar is too cold (below 45°F) | Raise the Minimum Set Point to 60°F Raise the ambient temperature |



VI. Limited Warranty

For five years from the date of original delivery, your CellarPro warranty covers the internal compressor if it proves to be defective in materials or workmanship. In addition, for two years from the date of original delivery, your CellarPro warranty covers all parts and labor to repair or replace any components in the wine cooling unit that prove to be defective in materials or workmanship. The warranty will not be activated until the Support and Data Service Sheet has been completed and submitted to CellarPro. The warranty period starts from the time of purchase, regardless of the time of activation.

Under the terms of this warranty, CellarPro will repair or replace the original cooling unit with a new or refurbished cooling unit and, once replaced, the original cooling unit must be returned to CellarPro.

All service provided by CellarPro under the above warranty must be performed by a designated repair center, unless otherwise specified by CellarPro. Purchaser is responsible for shipping the cooling unit to and from CellarPro or to and from a designated repair facility, and for removing and reinstalling the cooling unit from the wine cellar.

The limited warranty applies only to cooling units purchased from the factory or an authorized dealer. Damage caused by others or by any cause beyond the control of CellarPro, shall not be considered defects in material or workmanship and are not covered by the warranty. The limited warranty does not cover any parts or labor to correct any defect caused by negligence, commercial use, accident, or improper use, maintenance, installation, service or repair.

THE REMEDIES DESCRIBED ABOVE FOR EACH WARRANTY ARE THE ONLY ONES, WHICH CELLARPRO WILL PROVIDE, EITHER UNDER THESE WARRANTIES OR UNDER ANY WARRANTY ARISING BY OPERATION OF LAW. CELLARPRO WILL NOT BE RESPONSIBLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES ARISING FROM THE BREACH OF THESE WARRANTIES OR ANY OTHER WARRANTIES, WHETHER EXPRES, IMPLIED OR STATUTORY.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other legal rights, which vary from state to state.

To receive parts and/or service and the name of a CellarPro designated repair facility nearest you, contact your CellarPro dealer. You may also contact CellarPro directly by calling us at 1.877.726.8496.



****IMPORTANT****
INSTALLERS *MUST* FILL OUT THIS SHEET AND FAX TO
707.794.8005 OR SCAN / EMAIL TO INFO@CELLARPRO.COM
TO ACTIVATE THE WARRANTY.

Installing CellarPro Split Systems requires an experienced professional and adherence to industry practices which are described in the manual. **If you need technical assistance during the installation, call 877.726.8496 x2.** To activate the warranty, the cooling unit must be installed properly and the installing technician must complete and return the page below to CellarPro as note above. We will contact you once we receive and review this sheet.

Technician Name

Tech Phone

System Information

| | |
|--------------------------------------|--|
| Customer Name | |
| Condensing Unit Model # | |
| Condensing Unit Serial # | |
| Evaporator Model # | |
| Evaporator Serial # | |
| Power to Condensing Unit (Check One) | |

Piping Information

| | |
|---|--|
| R-134a System Charge(lb) | |
| Line-set Length (ft) | |
| Liquid line diameter (OD) | |
| Suction line diameter (OD) | |
| Trap installed in drain line, charged with water, and tested for drainage (Y/N) | |
| ____ From Evaporator ____ From External Source | |

Operational Data

Take the following measurements during a normal refrigeration cycle, once the cellar has pulled down to the set-point temperature. Make sure the compressor is running when recording the data.

Evaporator

Range

| | | | | | | | |
|-----------------------------------|-------|--|--------|------|-----|--|----------------------------|
| Air temp. at Evaporator coil (°F) | Inlet | | Outlet | | TD | | 8-10°F TD |
| Evaporator Fan Speed | High | | Med | | Low | | |
| Evaporator power supply | Volts | | | Amps | | | 103-127V nameplate amps |

Condensing Unit

| | | | | | | | |
|-----------------------------------|-------|--|--------|------|----|--|------------------------------------|
| Air temp at Condenser coil (°F) | Inlet | | Outlet | | TD | | 20-30°F TD |
| Condenser fan status | On | | | Off | | | On |
| Suction readings at service valve | PSIG | | °F | | SH | | 25-35 PSIG 20°F Min. Superheat |
| Liquid readings at service valve | PSIG | | °F | | SC | | 105-180 PSIG 10-20°F Subcooling |
| Condensing unit power supply | Volts | | | Amps | | | 103-127V nameplate amps |