

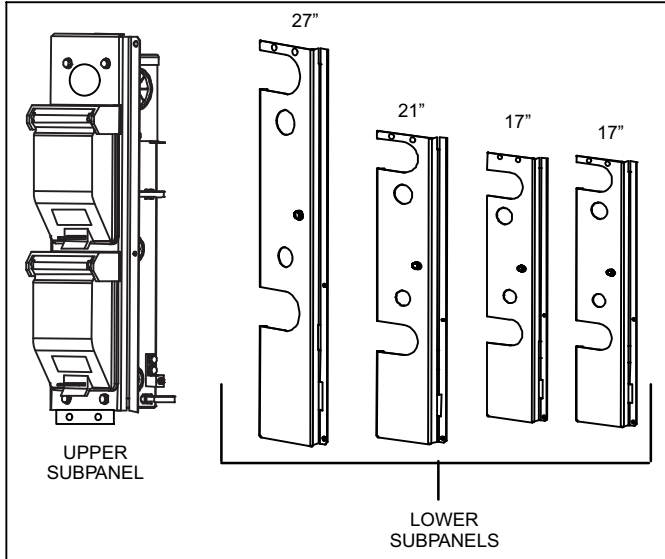


©2013 Lennox Industries Inc.
Dallas, Texas, USA

507088-01
3/2013
Supersedes 2/2013

LENNOX® SOLAR SUBPANEL

INSTALLATION INSTRUCTION FOR DAVE LENNOX SIGNATURE® COLLECTION
SOLAR SUBPANEL (62E02)



CAUTION

Electrostatic discharge can affect electronic components. Take precautions during unit installation and service to protect the unit's electronic controls. Precautions will help to avoid control exposure to electrostatic discharge by putting the unit, the control and the technician at the same electrostatic potential. Neutralize electrostatic charge by touching hand and all tools on an unpainted unit surface before performing any service procedure.

CAUTION

Physical contact with metal edges and corners while applying excessive force or rapid motion can result in personal injury. Be aware of, and use caution when working near these areas during installation or while servicing this equipment.

WARNING

The State of California has determined that this product may contain or produce a chemical or chemicals, in very low doses, which may cause serious illness or death. It may also cause cancer, birth defects, or reproductive harm.

WARNING

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

WARNING



Electric Shock Hazard. Can cause injury or death. Unit must be grounded in accordance with national and local codes.

Line voltage is present at all components when unit is not in operation on units with single-pole contactors. Disconnect all remote electric power supplies before opening access panel. Unit may have multiple power supplies.

Shipping and Packing List

Check kit (62E02) for shipping damage. Consult last carrier immediately if damage is found.

- 1 — Upper subpanel
- 4 — Lower subpanel
- 1 — Bag assembly
 - Backfeed warning label (1)
 - HVAC disconnect notice label (1)
 - Solar disconnect notice label (1)
 - Wire tie (1)
 - Wire nuts (4)
 - Wiring diagram (1)
 - Bag which includes the following:
 - 1 — Bushing (for low voltage wiring)
 - 2 — Isolation grommets for liquid and suction/vapor lines

General

The Lennox® Dave Lennox Signature® Collection (DLSC) Solar Subpanel is just one component of the Sunsource® Home Energy System (see figure 1). See Lennox® Application and Design Guidelines, Corp. 1312-L2 for further details concerning installation site requirements, permits, rebates and various components of the Sunsource™ Home Energy System.



LENNOX® DLSC SOLAR SUBPANEL

The following are key points for the Lennox® Solar Subpanel:

- Only for use on SunSource® compatible Dave Lennox Signature® Collection air conditioners and heat pumps.
- Optional safety agency listed accessory
- Provides circuits protection and power entry points for HVAC and solar wiring.
- Pigtail connections for easy field wiring.
- Split Panel — One kit for all Dave Lennox Signature® Collection compatible air conditioners and heat pumps.
- Replaces piping panel on Dave Lennox Signature® Collection compatible air conditioners and heat pumps.
- Not backwards compatible with older Dave Lennox Signature® Collection air conditioners and heat pumps. Refer to applicable outdoor unit model's Product Specification bulletin (EHB) for compatibility.

- Install rails
- Secure trunk cable to rails
- Install cable end into junction box
- Cap the other end of the trunk cable
- Mount inverters and connect the AC wiring to the trunk cable
- Install ground wire
- Install modules accordingly
- Route alternating current (AC) interconnection cable to junction box
- Leave AC interconnection cable disconnected from first microinverter until commissioning
- Connect AC interconnection cable to conductors routed to the outdoor Heating, Ventilating and Air Conditioning (HVAC) unit
- Route wires from junction box to vicinity of outdoor HVAC unit. See Table 1 for wire length maximum distance
- Install service disconnect for solar wiring
- Install service disconnect labels (provided)
- Connect HVAC branch circuit and solar circuit conduits to Lennox® Solar Subpanel
- Conduit connections to Lennox® DLSC Solar Subpanel MUST be liquid-tight
- Solar photovoltaic (PV) array must be grounded according to NEC Article 690 Section V and all applicable local codes
- Some utilities require an indicating, lockable disconnect for solar PV systems. If there is such a requirement, the utility sometimes provided the device. Check with your local utility.

Installation — Solar Modules and Wiring

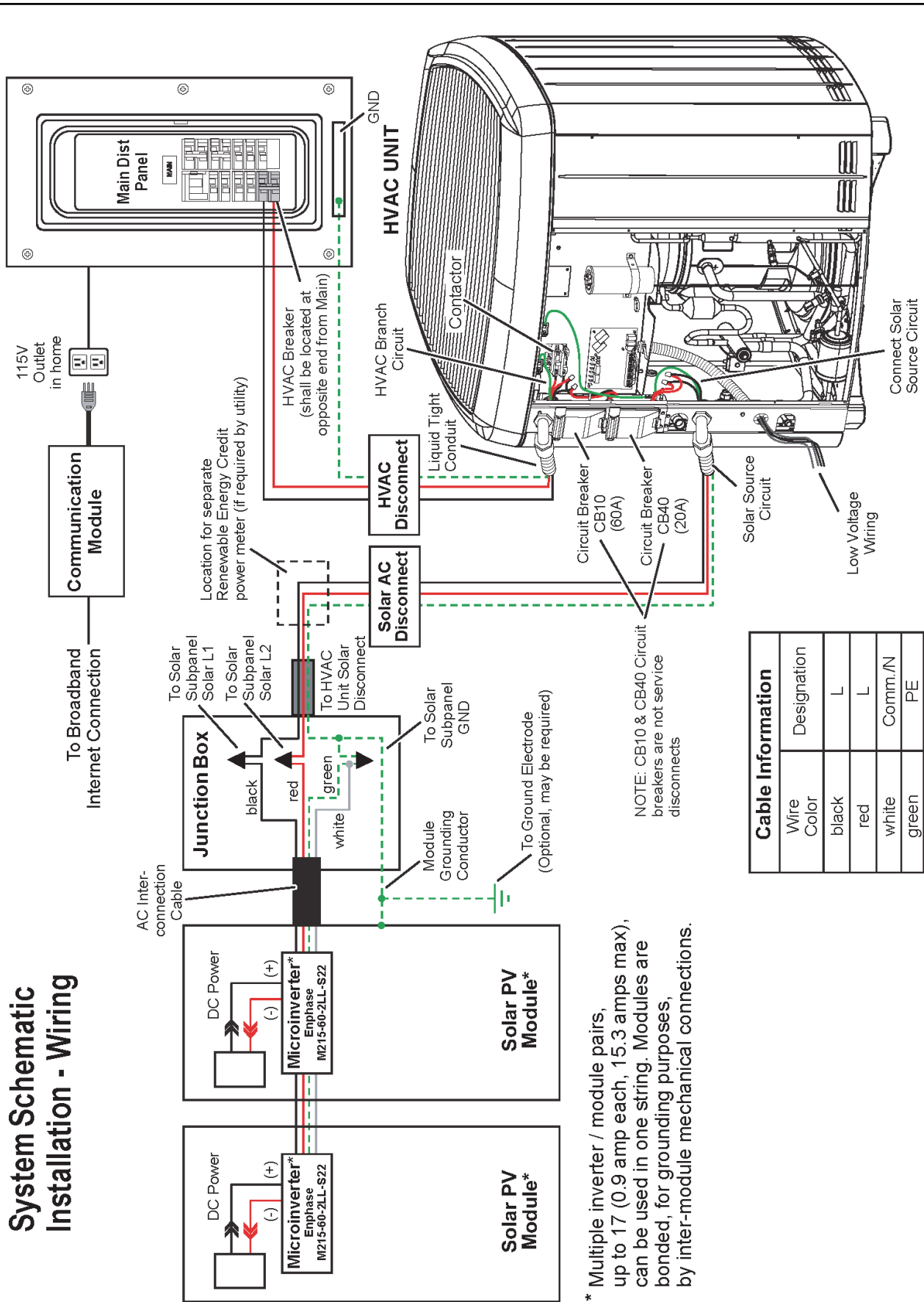
The following information is provided as a guideline for installation of solar modules. Refer the solar module manufacturer's installation instruction for complete detailed instructions. Figure 15 is the wiring diagram for the Lennox® Solar Subpanel.

- Layout module array on roof with chalk outline
- Locate roof rafters and mark locations
- Mark roof penetrations ensuring spacing requirements are met
- Install flash mounts per recommended practices

Table 1. Maximum Wire Length — Feet (Meters)

Wire Size (AWG)	Number of Solar Modules per Branch											
	<i>Wire length maximum distance from solar modules to HVAC unit.</i>											
	7	8	9	10	11	12	13	14	15	16	17	
10	148 (45)	130 (40)	115 (35)	104 (32)	94 (29)	87 (27)	80 (24)	74 (23)	69 (21)	65 (20)	61 (19)	
8	237 (72)	207 (63)	184 (56)	166 (51)	151 (46)	138 (42)	127 (39)	118 (36)	110 (34)	103 (31)	97 (30)	
6	375 (114)	328 (100)	292 (89)	263 (80)	239 (73)	219 (67)	202 (62)	188 (57)	175 (53)	164 (50)	155 (47)	

System Schematic Installation - Wiring



* Multiple inverter / module pairs, up to 17 (0.9 amp each, 15.3 amps max), can be used in one string. Modules are bonded, for grounding purposes, by inter-module mechanical connections.

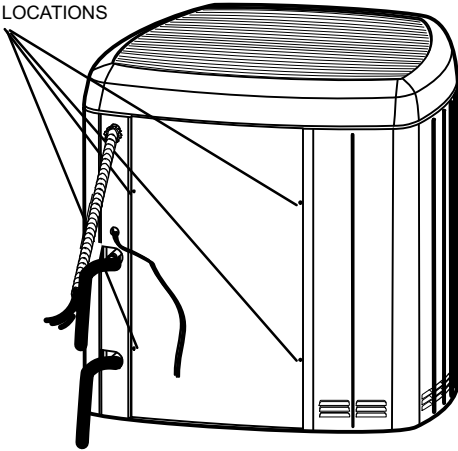
Figure 1. SunSource® Home Energy System Schematic

ACCESS PANEL, PIPING PANEL AND WIRING REMOVAL

Steps 1 through 5 are for units already installed and operational. For new installations, start with Step 6.

1. Disconnect all power to the existing outdoor unit at the disconnect switch if unit is already installed and running.
2. Remove access panel.

ACCESS PANEL FASTENER LOCATIONS



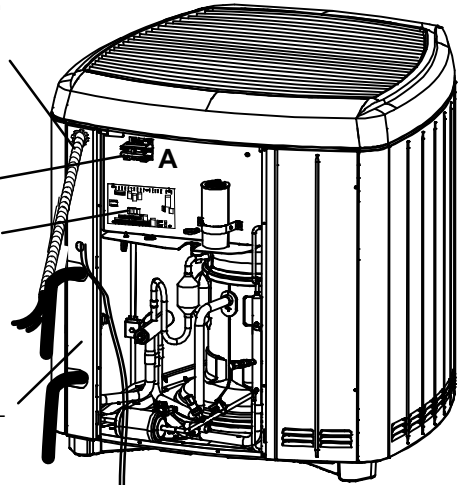
3. Disconnect HVAC wiring at outdoor unit contactor **A** (L1 and L2) and chassis ground. Withdrawal wiring from unit.
4. Disconnect low voltage wiring **B** at icomfort™-enabled control and withdrawal from unit. Mark wiring for reconnection later.
5. Remove any liquid-tight fittings and conduit from existing piping panel

EXISTING LIQUID-TIGHT FITTINGS AND CONDUIT

CONTACTOR
ICOMFORT™-ENABLED CONTROL

PIPING PANEL

B



6. Remove the two fasteners securing the piping panel to outdoor unit.
7. Remove piping panel. Pull out and to the right to avoid the line sets if already installed.

FASTENERS

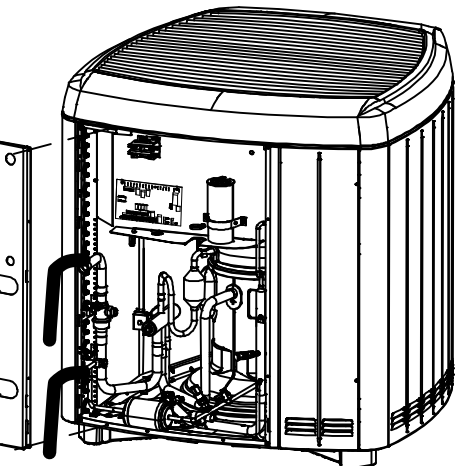
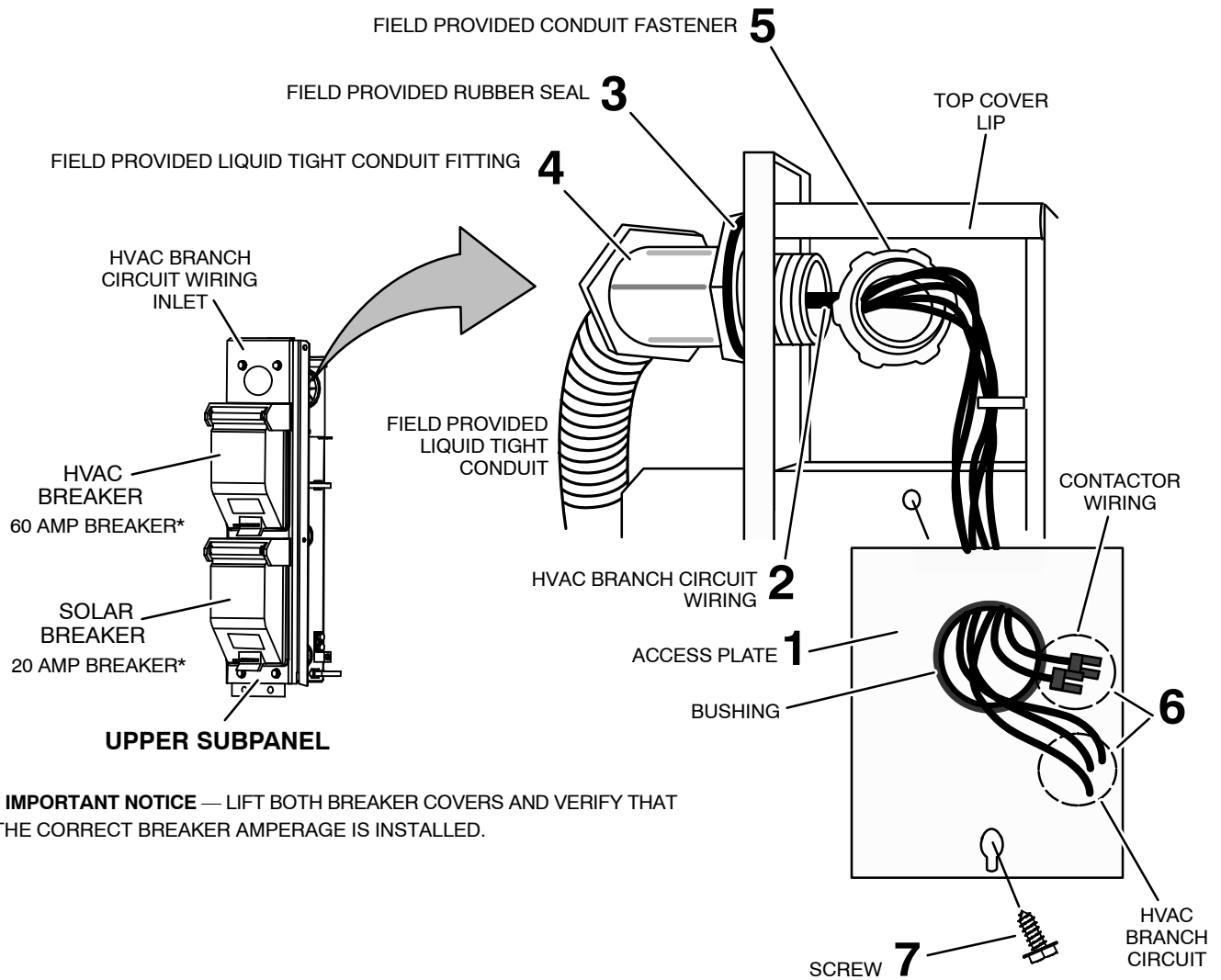


Figure 2. Removing Existing Components

PREPARING UPPER SOLAR SUBPANEL



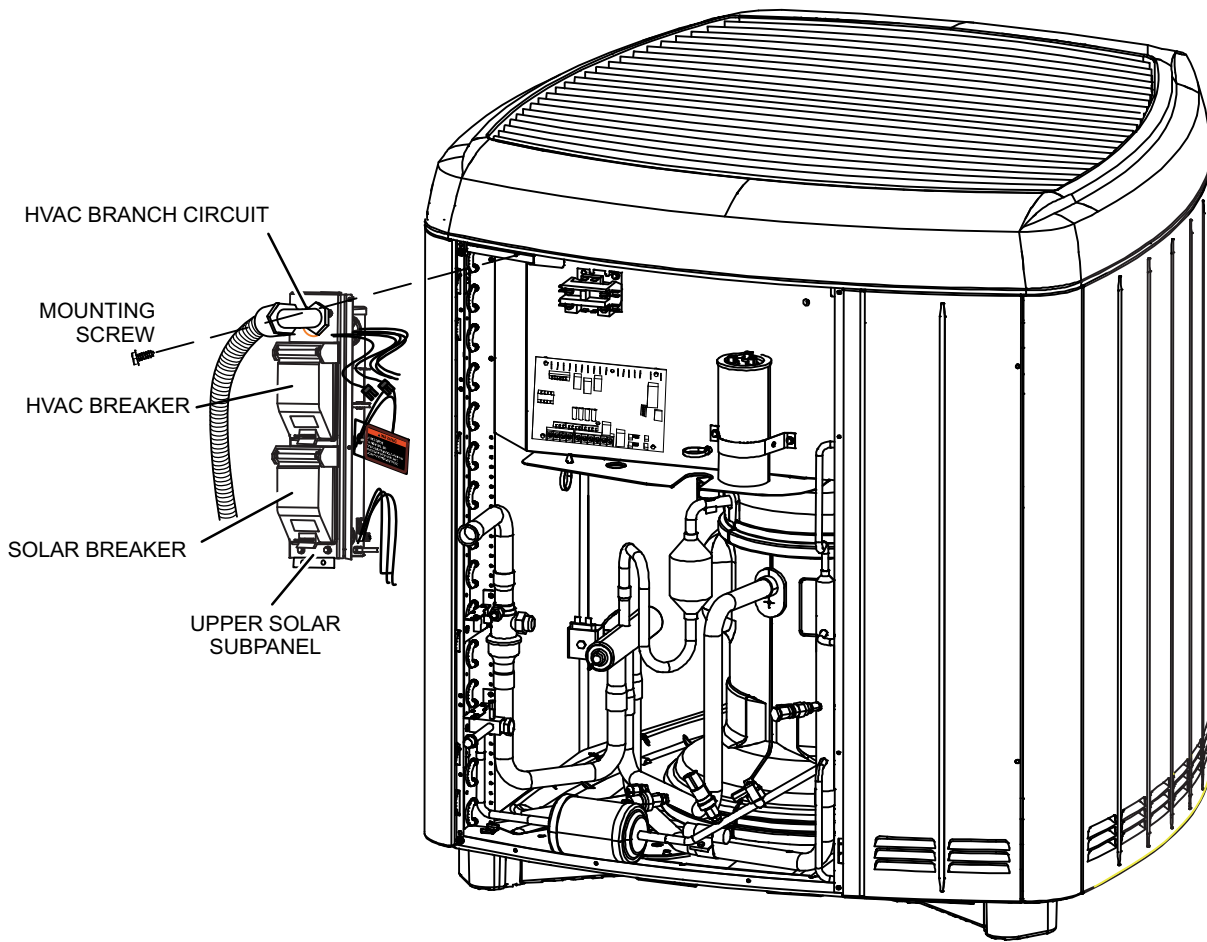
* **IMPORTANT NOTICE** — LIFT BOTH BREAKER COVERS AND VERIFY THAT THE CORRECT BREAKER AMPERAGE IS INSTALLED.

1. Remove the **access plate** located on the upper right side of the upper subpanel by loosening the screw.
2. Feed wiring from unit disconnect **L1, L2** and **ground** wiring (HVAC branch circuit wiring inlet) through field provided liquid-tight conduit and fittings.
3. Install a field provided rubber seal between the conduit fitting and main utility inlet.
4. Install the liquid-tight conduit fitting to the upper subpanel.
5. Secure the liquid-tight conduit fitting to the upper subpanel using field provided conduit fastener.
6. Feed HVAC branch circuit and contactor wiring through the access plate bushing.
7. Reinstalled access plate and secure with screw removed in Step 1.

NOTE: Access plate is installed under the top cover lip.

Figure 3. Conduit and Main Utility Wiring Installation

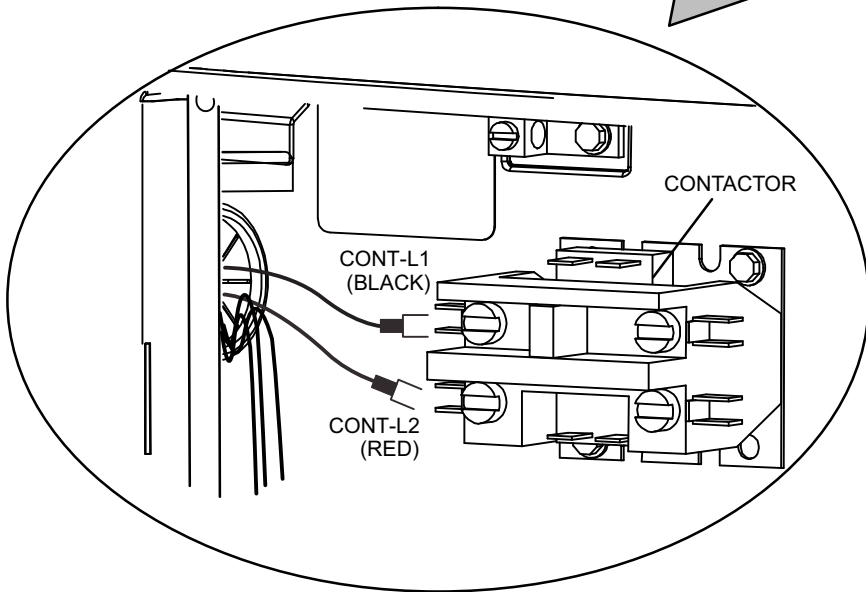
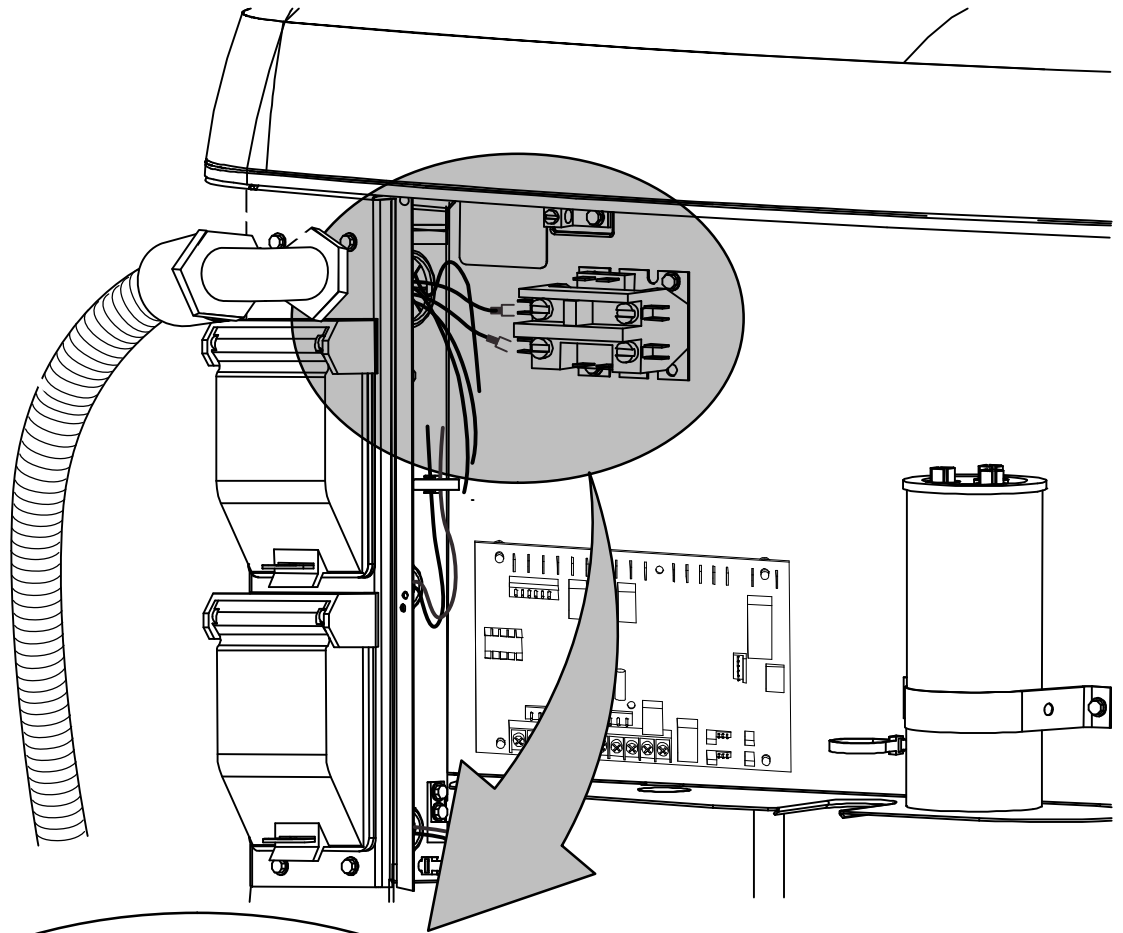
INSTALLING UPPER SOLAR SUBPANEL TO OUTDOOR UNIT



Secure upper panel to unit with previously removed fastener.

Figure 4. Wiring and Installing Upper Solar Subpanel

UPPER SOLAR SUBPANEL CONTACTOR WIRING CONNECTIONS



SEE FIGURE 15 FOR FULL SIZE VERSION OF THIS WIRING DIAGRAM.

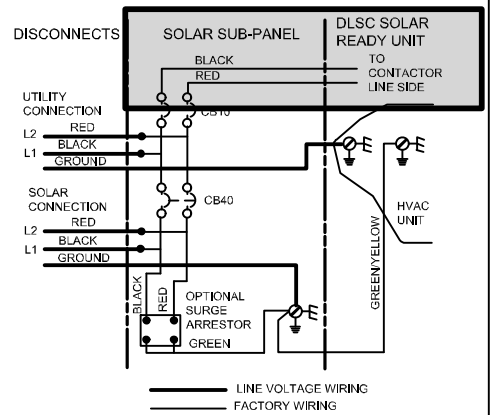
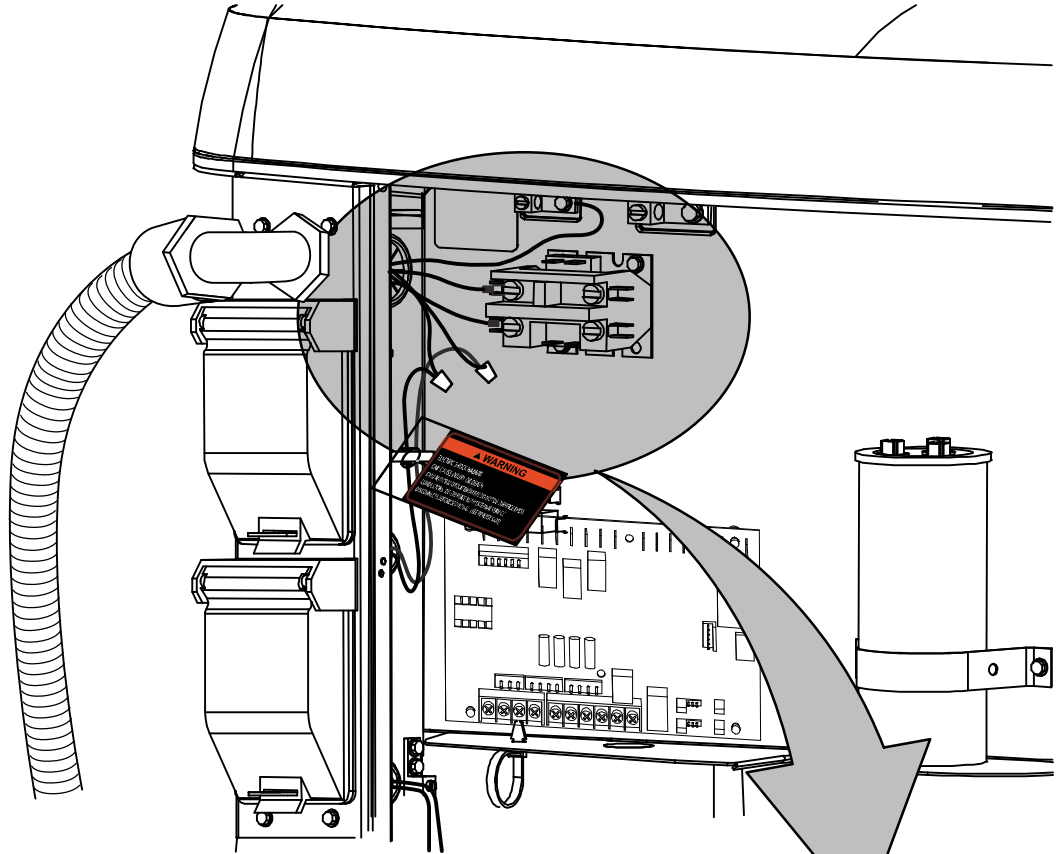
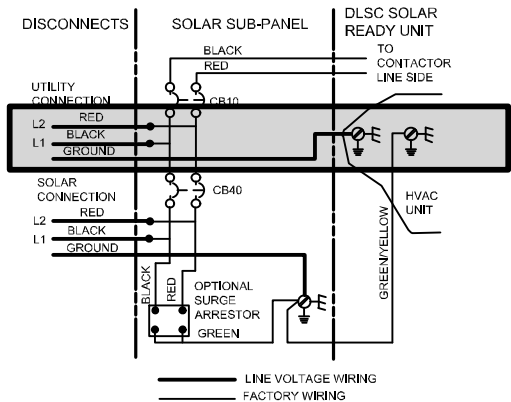
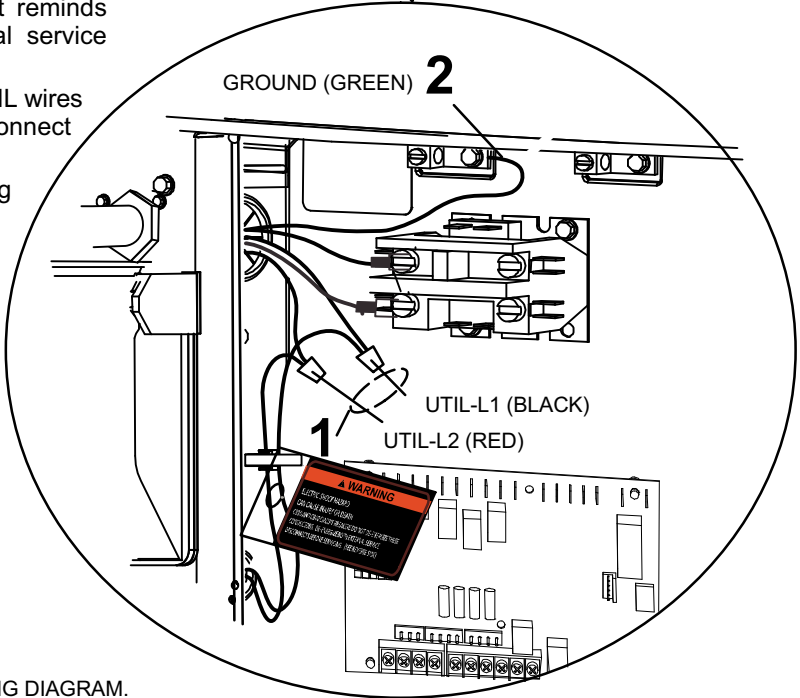


Figure 5. Contactor Connections

UPPER SOLAR SUBPANEL HVAC BRANCH CIRCUIT CONNECTIONS



1. Connect HVAC branch circuit wiring using kit provided wire nuts to subpanel pigtailed labeled UTIL-L1 and UTIL-L2. Take note of the WARNING TAG on these wires. It reminds service personnel to de-energize both external service disconnects before servicing.
2. Wrap these wire nuts with electrical tape. The UTIL wires are energized whenever the external HVAC disconnect is closed.
3. Attach HVAC branch circuit ground to a ground lug in HVAC control box



SEE FIGURE 15 FOR FULL SIZE VERSION OF THIS WIRING DIAGRAM.

Figure 6. HVAC Branch Circuit and Ground Connections

PREPARING LOWER SOLAR SUBPANEL

1. Kit includes four lower panels. Select the lower panel that fits correctly.
2. Feed wiring from solar disconnect **L1**, **L2** and **ground** wiring (solar power system wiring) through field provided liquid tight conduit and fittings.
3. Install a field provided rubber seal between the conduit fitting and solar utility inlet.
4. Install field provided liquid tight conduit fitting over the solar power system Inlet.
5. Secure the liquid tight conduit fitting to the lower subpanel using field provided conduit fastener.

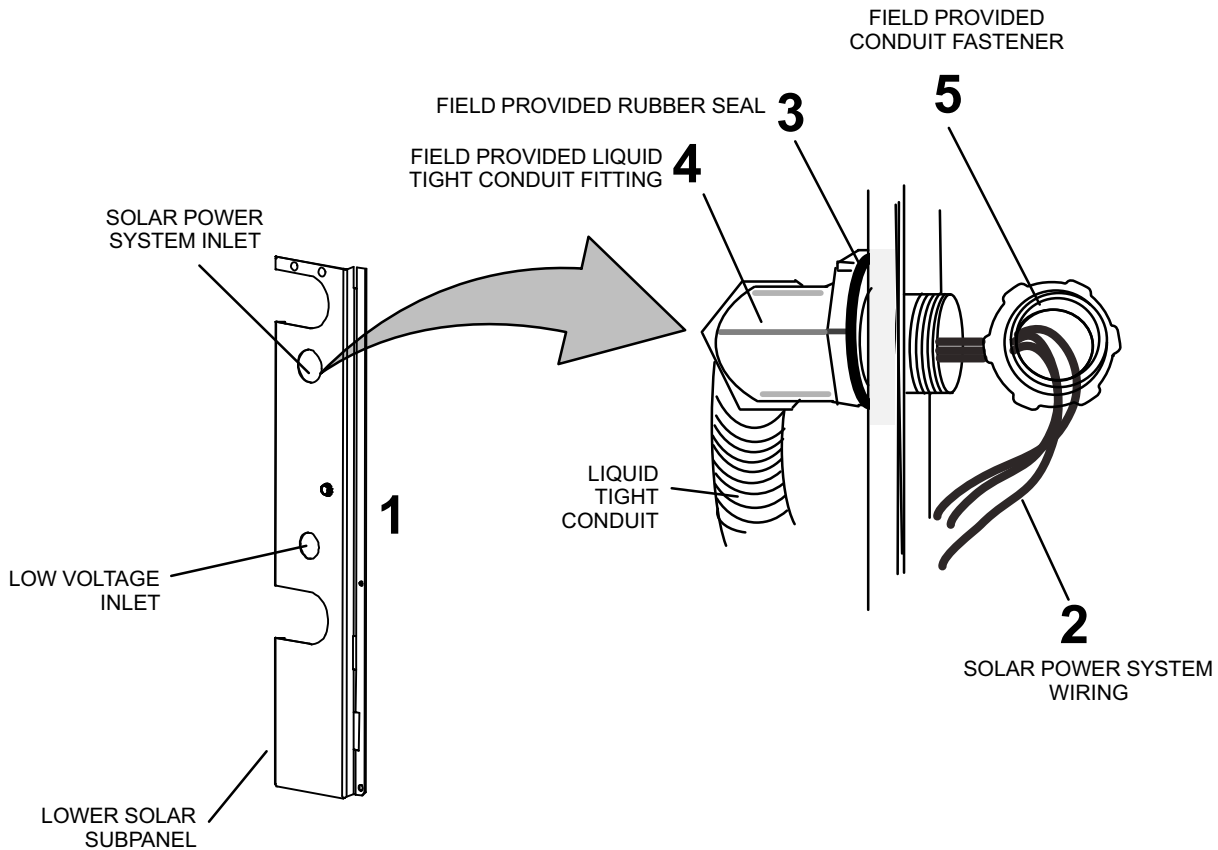


Figure 7. Conduit and Solar Power System Wiring Installation

INSTALLING LOWER SOLAR SUBPANEL

1. Use the kit provided fasteners to secure lower panel to outdoor unit.
2. Verify low voltage sleeve is installed on the selected lower panel.

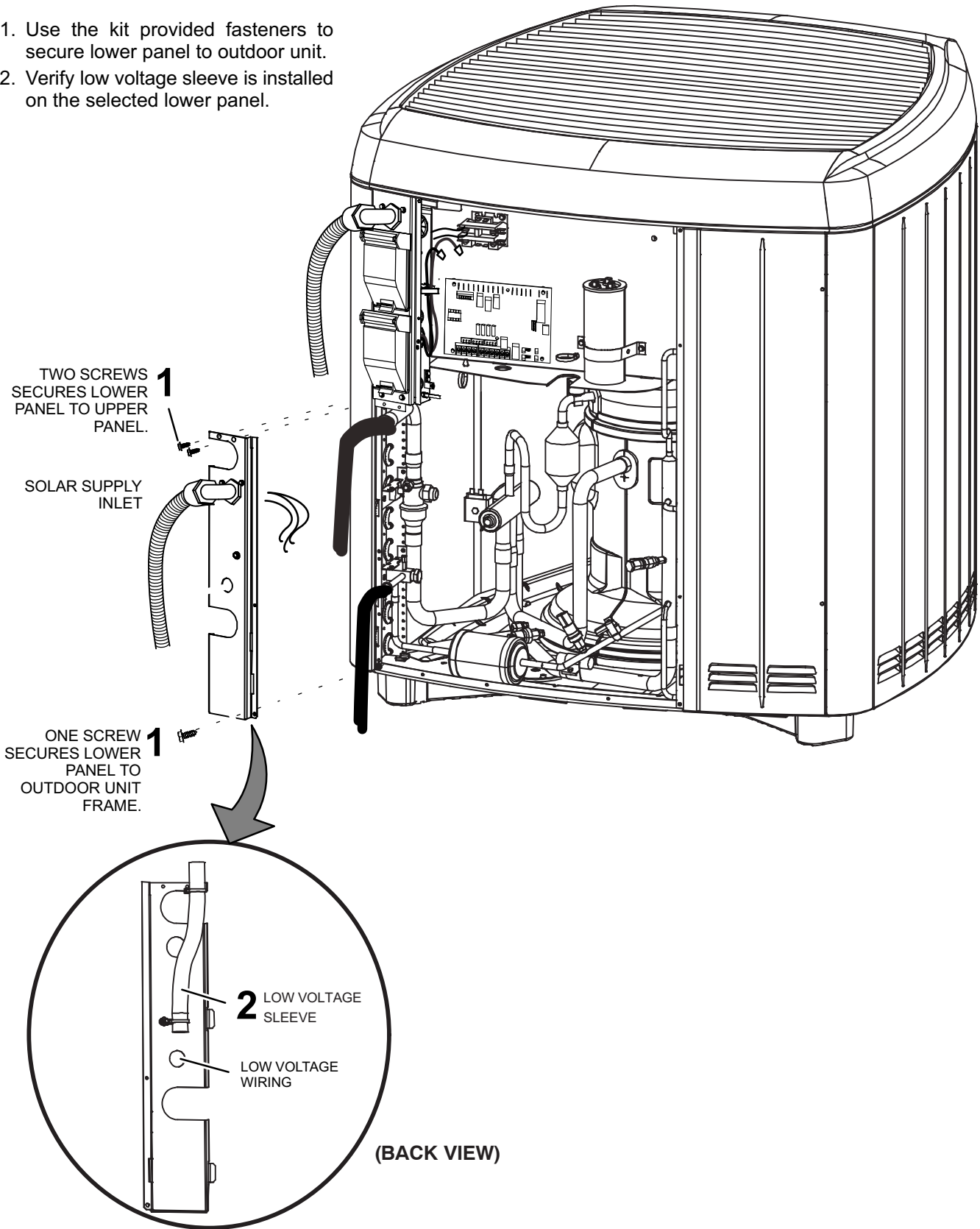
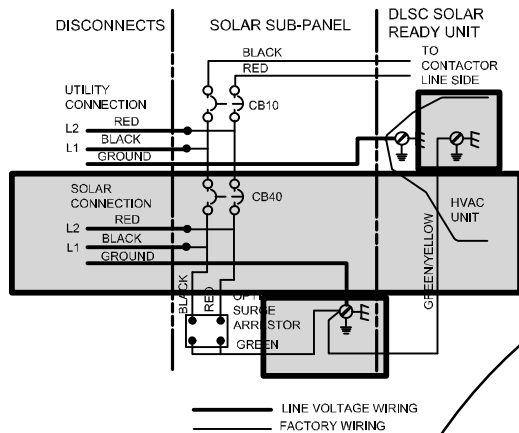
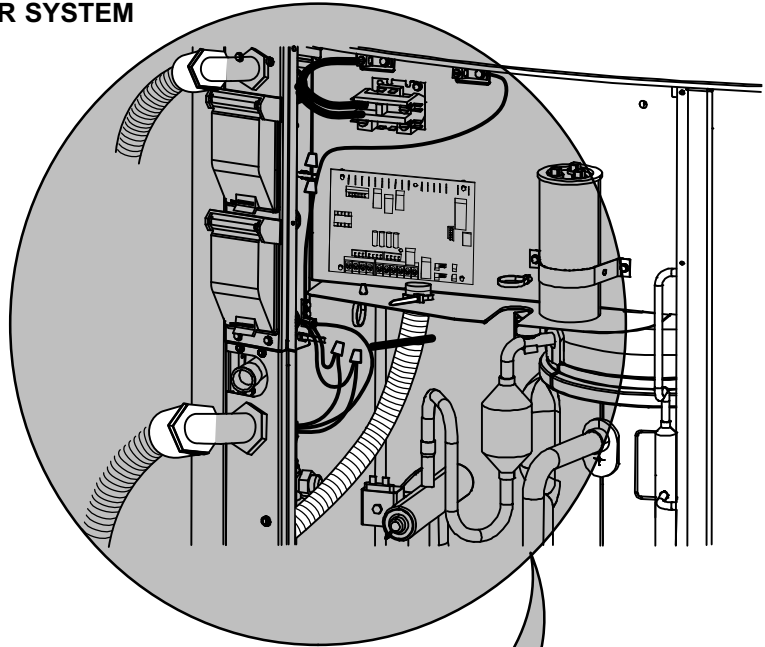


Figure 8. Installing Lower Solar Subpanel

LOWER SOLAR SUBPANEL SOLAR POWER SYSTEM CONNECTIONS

1. Connect solar ground (green/yellow wire) from upper solar subpanel to installed ground lug.
2. Connect solar power system wiring using field provided wire nuts to upper subpanel pigtails labeled **SOLAR-L1** and **SOLAR-L2**.
3. Attach solar branch circuit ground to ground lug on solar subpanel.



SEE FIGURE 15 FOR FULL SIZE VERSION OF THIS WIRING DIAGRAM.

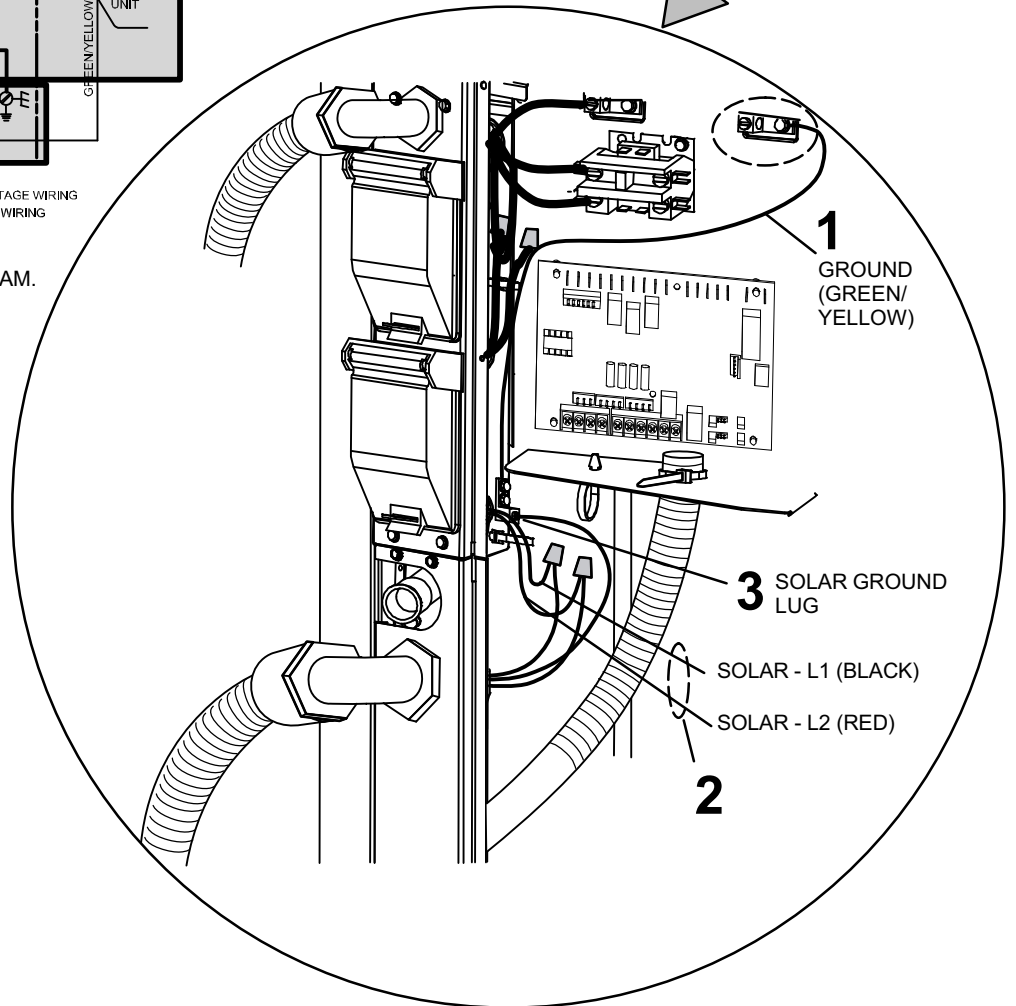


Figure 9. Solar Power System Connections

LOWER SOLAR SUBPANEL LOW VOLTAGE CONNECTIONS

1. Install kit provided bushing to low voltage inlet.
2. Feed low voltage control wiring through low voltage inlet (bushing).
3. Feed low voltage wiring through kit provided flexible conduit.
4. Cable tie conduit above and below control box inlet.
5. Make icomfort™-enabled control low voltage connections.

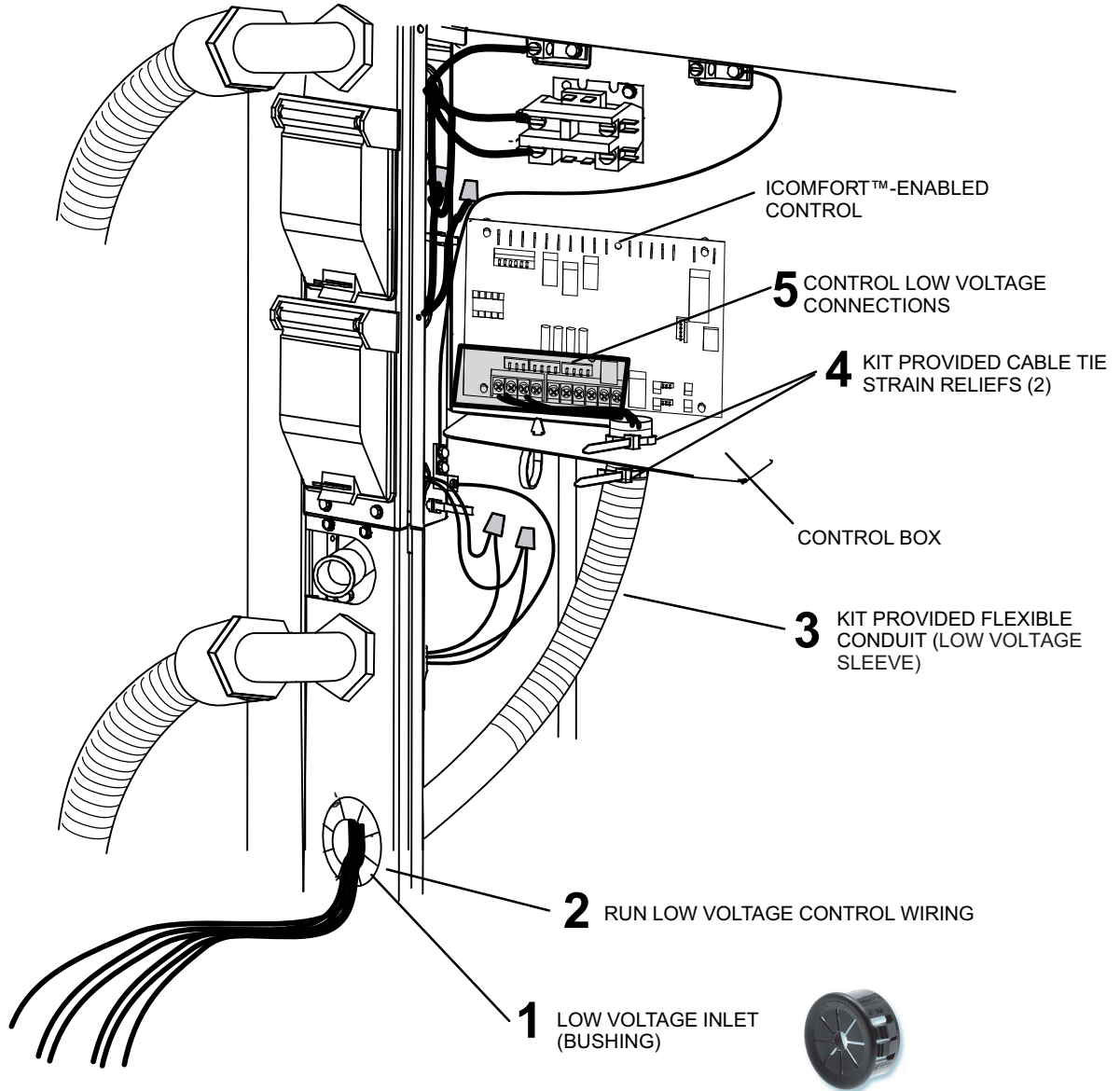


Figure 10. Typical Lower Solar Subpanel Low Voltage Wiring Connections

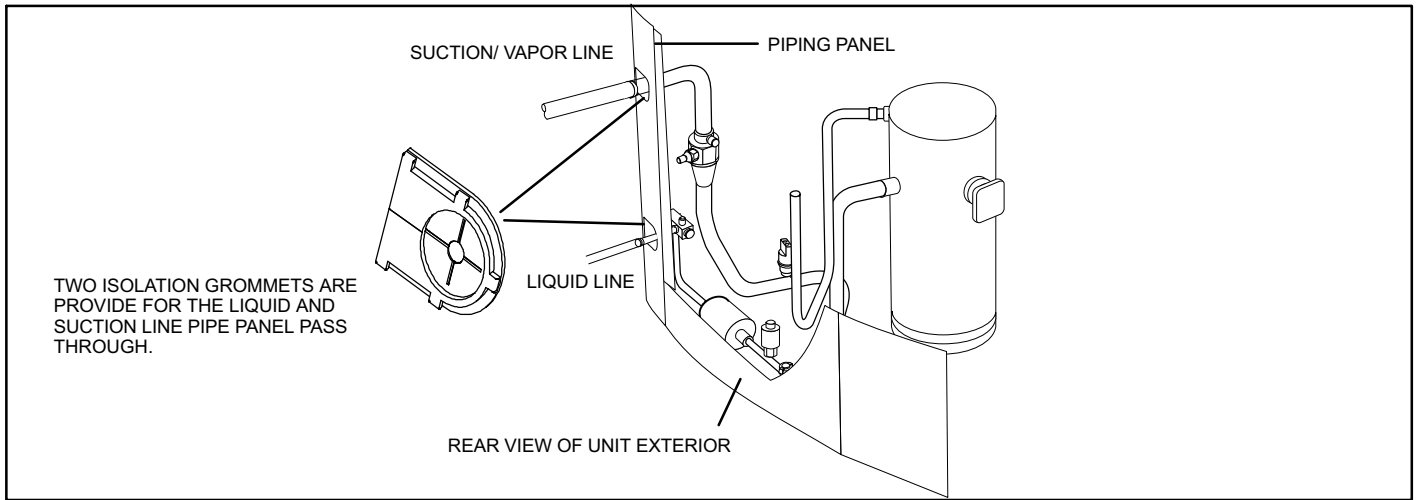


Figure 11. Isolation Grommets

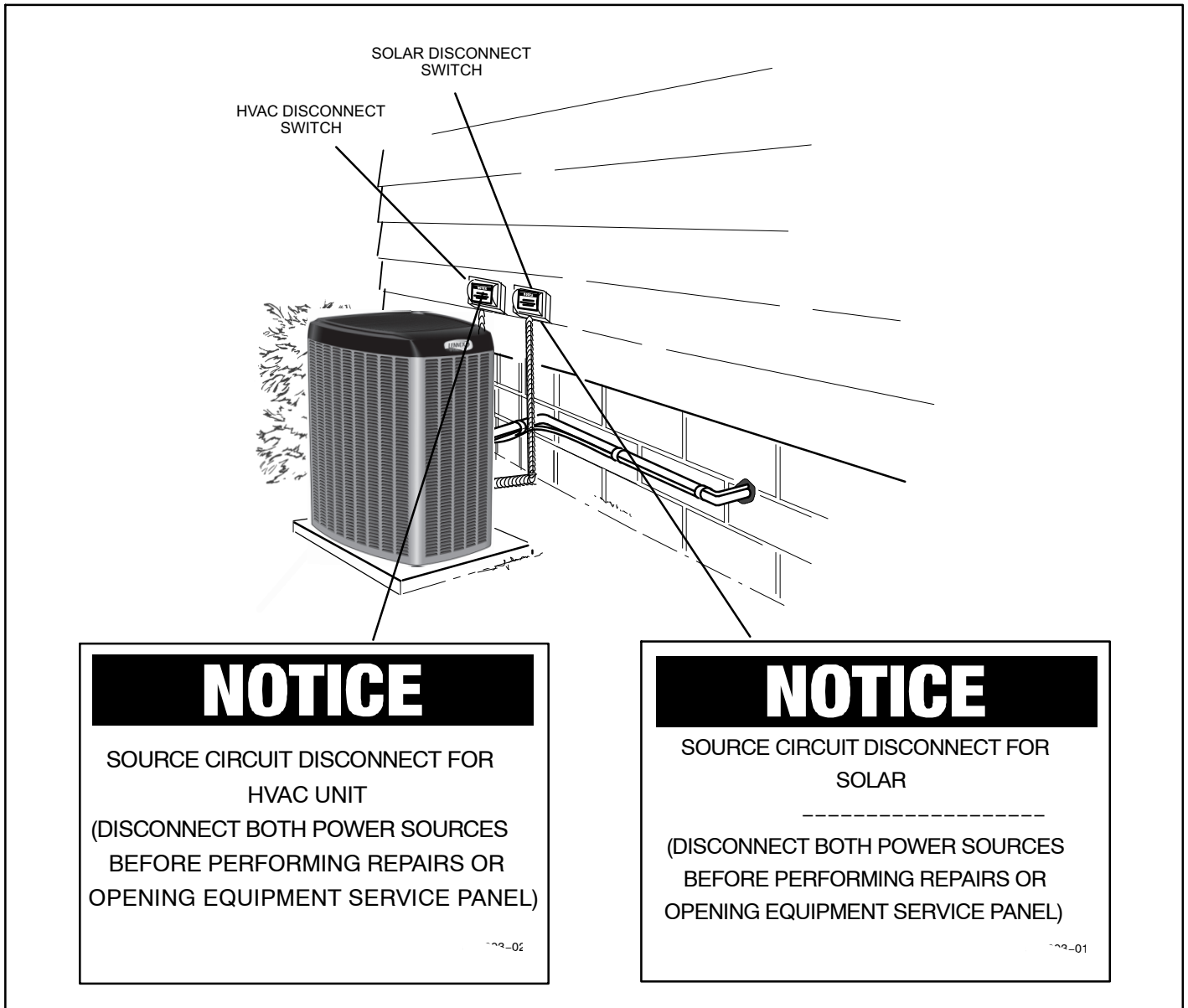


Figure 12. Placement of Disconnect Notice Labels

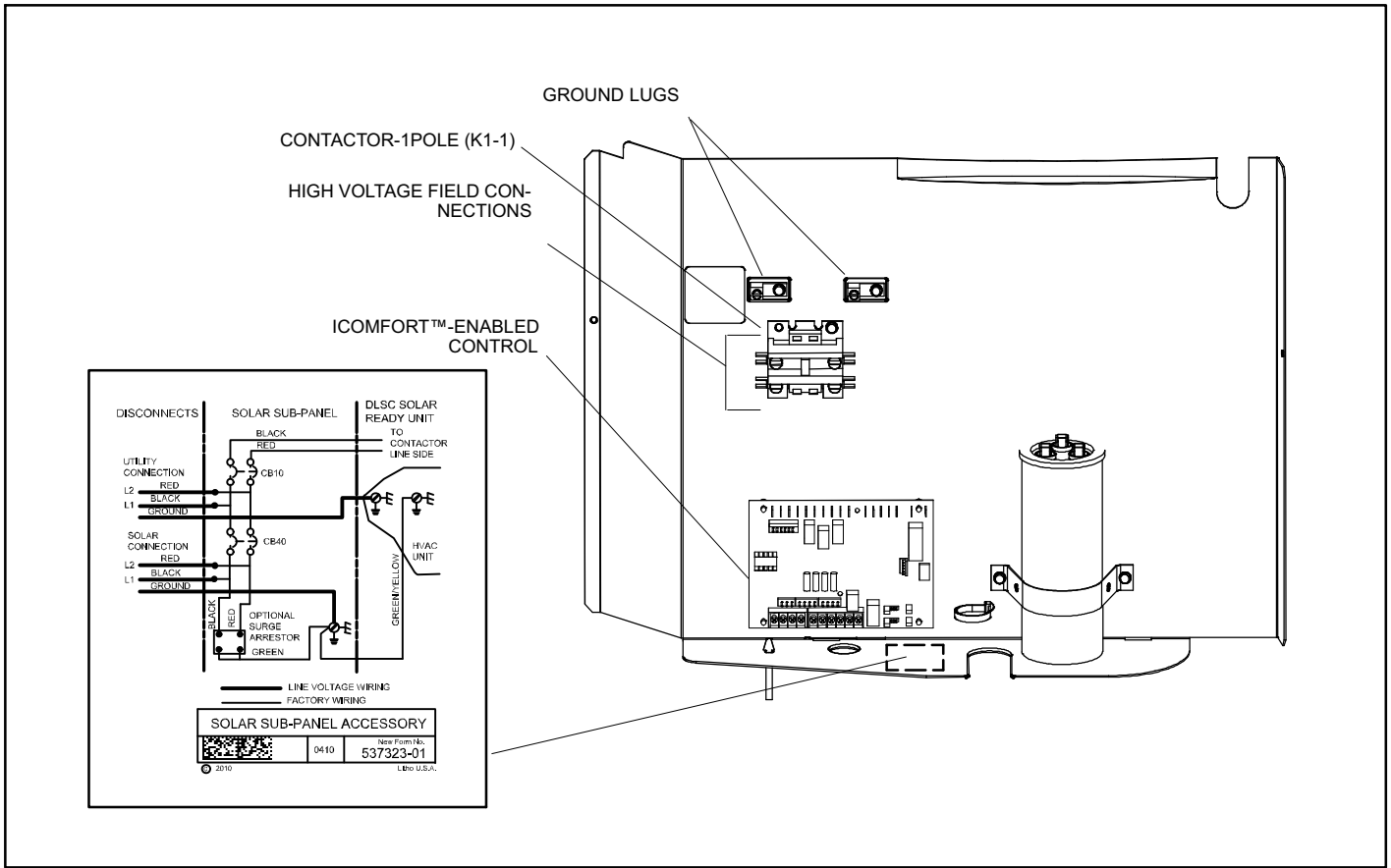


Figure 13. Typical Wiring Diagram Placement

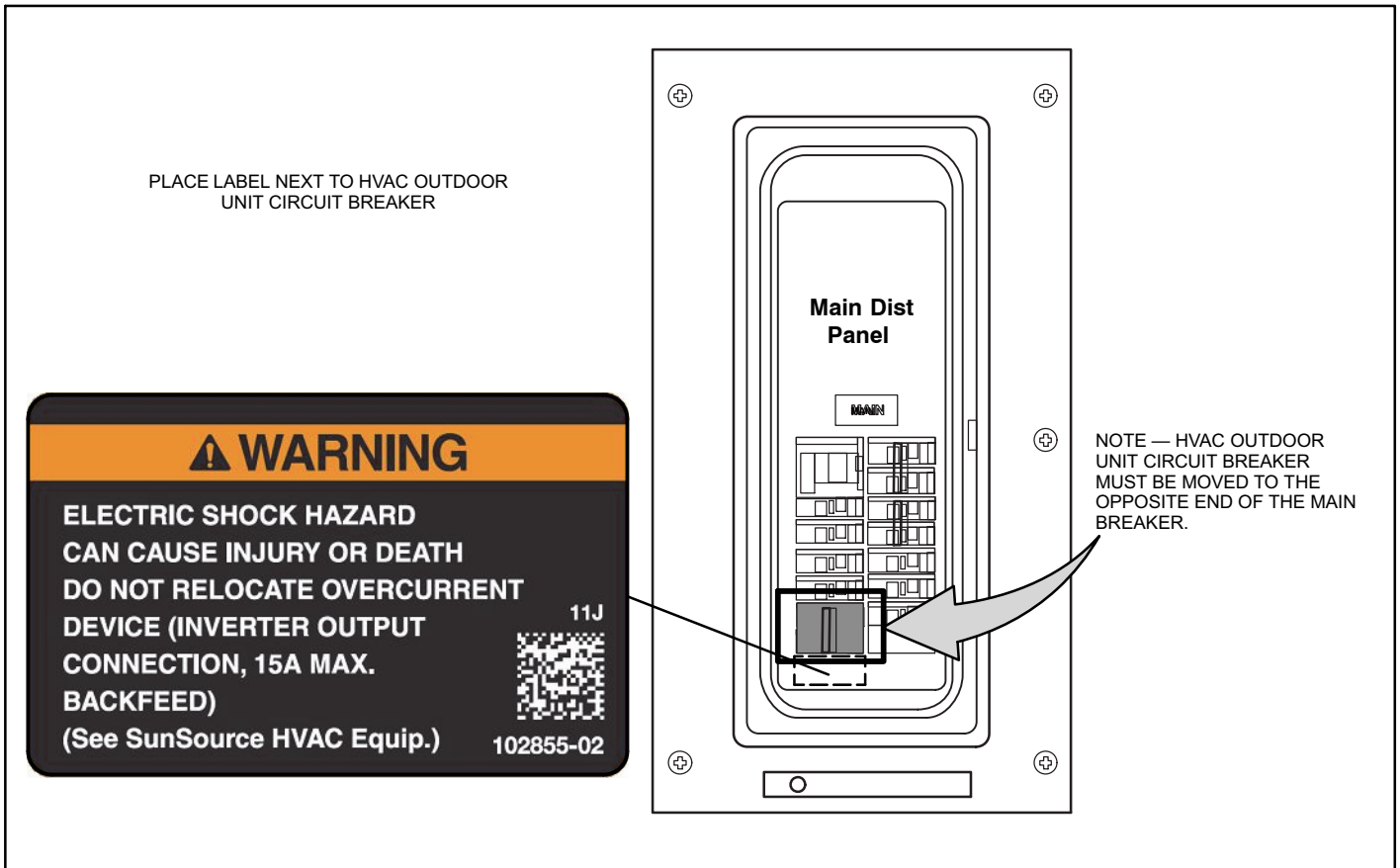
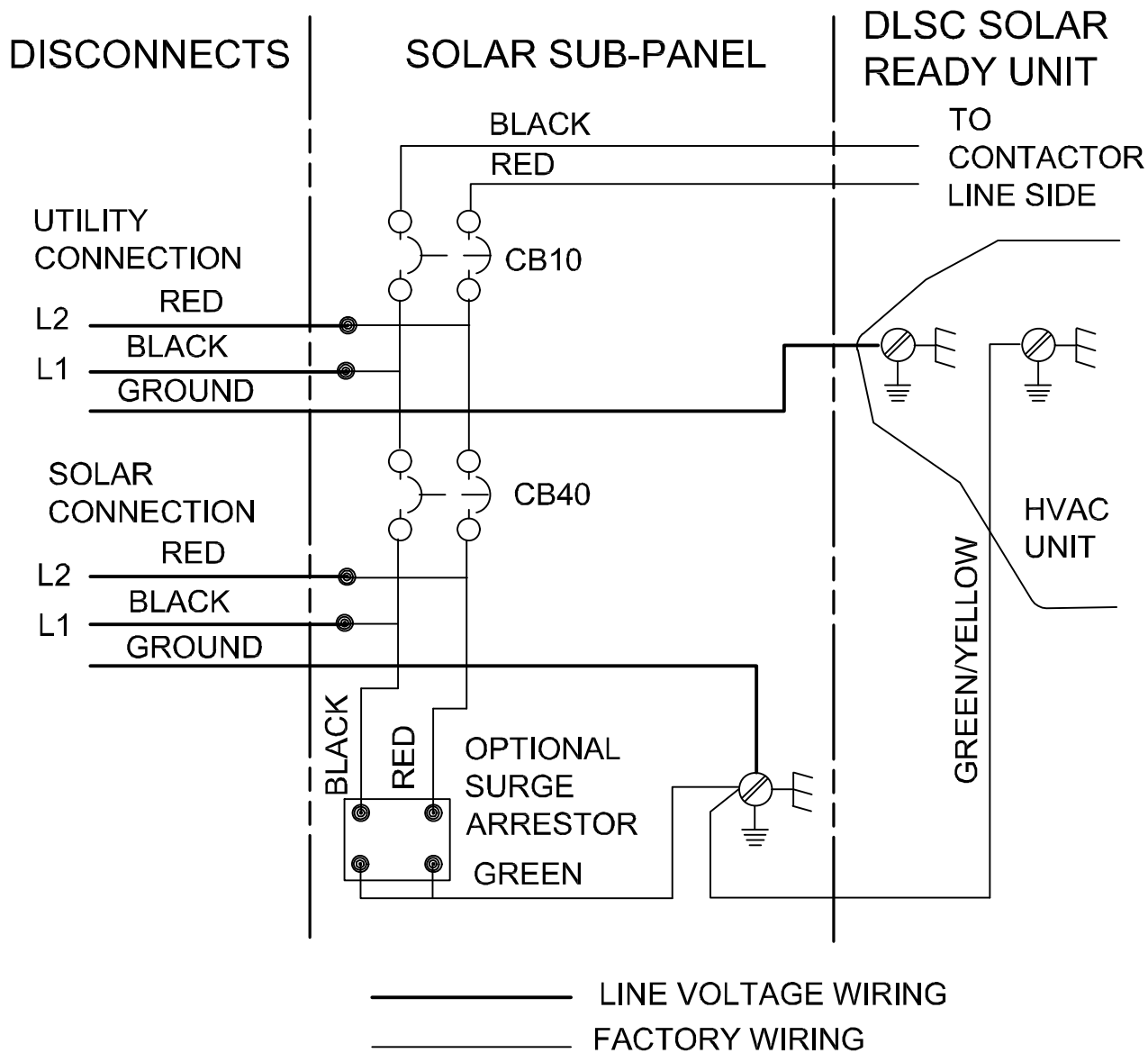



Figure 14. Backfeed Warning Label Placement



SOLAR SUB-PANEL ACCESSORY		
	0410	New Form No. 537323-01

© 2010

Litho U.S.A.

Figure 15. Solar Subpanel Wiring Diagram