Commercial Split System Installation Chart

TYPICAL PIPING AND WIRING

1 - Select a location that meets the requirements and limitations of the refrigerant piping recommendations shown in next section, "3) Install Refrigerant Piping."
2 - Maintain adequate clearance for airflow and service access.
3 - Unit may be mounted on a field-supplied pad or support rails.

SAFETY CONSIDERATIONS

- Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system pressures, electrical components, and equipment location.
- Only trained, qualified installers and service mechanics should install, start-up, and service this equipment.
- Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.
- When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment.
- Follow all safety codes. Wear safety glasses and work gloves. Keep quenching cloth and fire extinguisher attached to the equipment. Refer to Carrier System Design Manual for details.

3) INSTALL REFRIGERANT PIPING

1 - Select suction (S) and liquid (L) line size from the table below.
2 - Select refrigerant specialties.
3 - Suction line accumulator(s) are required when line length exceeds 75 ft.
4 - Maximum line length is 100 ft.
5 - Do not bury refrigerant piping underground.

REFRIGERANT PIPING SIZES

<table>
<thead>
<tr>
<th>UNIT</th>
<th>PIPE SIZES</th>
<th>LENGTH OF PIPING — FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-20</td>
<td>L = S = L</td>
<td>S S L S L S L</td>
</tr>
<tr>
<td>D-75</td>
<td>1/4 1/4 1/4</td>
<td>1/4 1/4 1/4</td>
</tr>
<tr>
<td>D-100</td>
<td>1/4 1/4 1/4</td>
<td>1/4 1/4 1/4</td>
</tr>
</tbody>
</table>

NOTES:
- L = Liquid Line. S = Suction Line
- Pipe sizes are based on the maximum linear length, shown for each column, plus a 50% allowance for fittings.
- Charge units with R-22 in accordance with unit installation instructions.
- Rack units required.

HEAT PUMP UNIT SPECIALTIES PART NUMBERS

<table>
<thead>
<tr>
<th>UNIT</th>
<th>S</th>
<th>L</th>
<th>LLSV</th>
<th>SIGHT GLASS</th>
<th>FILTER DRIER</th>
<th>SUCTION LINE ACCUMULATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-20</td>
<td>1/4 1/4 1/4</td>
<td>1/4 1/4 1/4</td>
<td>1/4 1/4 1/4</td>
<td>1/4 1/4 1/4</td>
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</tr>
</tbody>
</table>

NOTES:
- For applications with liquid lift greater than 20 ft, use 1/2 in. liquid line where 3/8 in. is shown; use 5/8-in. liquid line where 1/2 in. is shown.
- Maximum liquid lift is 20 ft.
- Accumulator required when line set is 75 to 100 ft.
- Dual circuit units require 2 suction and 2 liquid lines.

Typical Piping for Units on the Same Level

Typical Piping When Indoor Unit is Above the Outdoor Unit

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Form Number 38AR-3CI
Replaces 38AR-2CI
Continued on back
4) MAKE ELECTRICAL CONNECTIONS

**WARNING**

Before installing or servicing system, always turn off main power to system and install lockout tag on disconnect. There may be more than one disconnect switch. Electrical shock can cause personal injury.

**POWER WIRING**

1. Verify that power is off, locked out and tagged off.
2. Route power wiring from disconnect through opening in unit end panel and connect in unit control box as shown on the unit label diagram.

**CONTROL WIRING**

1. Verify that power is off, locked out and tagged off.
2. Transformer wiring: If supply voltage is 208 V or 400 V, move the black wire to the appropriate terminal.
3. Make connections from thermostat to terminal strip (TB) in the outdoor unit.

**Heat Pump Units**

**Single Compressor Condensing Units**

**Dual Compressor Condensing Units**

5) UNIT PRE-START

**LEAK TEST**

1. Pressurize refrigerant piping; do not exceed 150 psi.
2. Check for leaks.

**EVACUATION**

Outdoor unit contains factory-holding charge of R-22. Opening liquid line ball valve prior to charging will release holding charge.

**INITIAL CHARGING – UNIT OFF**

1. After evacuating the system, precharge the system with 80% of the operating charge (minimum 9 lb).

**TRIM CHARGE LEVEL**

1. After system has been started and allowed to stabilize, adjust refrigerant level, if required, based on the Cooling Charging Chart found on unit and in Installation Instructions.
2. Check superheat at the compressor; superheat should be 8 to 12°F.

**PRE START-UP TIPS**

1. Read Installation, Start-Up, and Service manual.
2. Use start-up checklist.
3. Check all wiring connections.
4. Open service valves.
5. Turn on power for indoor and outdoor sections.
6. Energize crankcase heater for 24 hours prior to start-up.
7. Make sure compressor(s) can move freely on mounting snubbers or springs.

**IMPORTANT:** Units with Copeland compressor may be equipped with Advanced Scroll Temperature Protection. Refer to the Installation, Start-Up, and Service manual for additional information.