# Extended Charge Procedure Commercial Application

## Elite® Series 6 – 20 Ton

AIR CONDITIONERS
6 - 20 TONS
508349-02
3/2025

**⚠ WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional HVAC installer or equivalent, or service agency.

**⚠ IMPORTANT**

The Clean Air Act of 1990 bans the intentional venting of refrigerant (CFCs, HCFCs and HFCs) as of July 1, 1992. Approved methods of recovery, recycling or reclaiming must be followed. Fines and/or incarceration may be levied for noncompliance.

**⚠ CAUTION**

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

**⚠ WARNING**

To prevent serious injury or death:

1. Lock-out/tag-out before performing maintenance.
2. If system power is required (e.g., smoke detector maintenance), disable power to blower, remove fan belt where applicable, and ensure all controllers and thermostats are set to the “OFF” position before performing maintenance.
3. Always keep hands, hair, clothing, jewelry, tools, etc. away from moving parts.

### General

This instruction is a complementary procedure. Installation should refer to the main unit instructions for the application considerations and proper installation procedures.

This ELKC and ELKP outdoor air conditioners are designed for use with R-454B refrigerant only. This unit must be installed with an approved indoor air handler or coil and line set as outlined in the ELKC or ELKP Engineering Handbook.

This outdoor unit is designed for use in thermal expansion valve (TXV) systems only.

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***NOTE** – The ELKC/ELKP is a PARTIAL UNIT AIR CONDITIONER, complying with PARTIAL UNIT requirements in this standard, and must only be connected to other units that have been confirmed as complying to corresponding PARTIAL UNIT requirements of this Standard, UL 60335-2-40/CSA C22.2 No. 60335-2-40, or UL 1995/CSA C22.2 No 236.*

## Refrigerant Charge

***NOTE** - This extended R-454B charging procedure applies to non-matched Indoor and Outdoor units only. For matched Indoor and Outdoor units with same full load capacity, see unit instructions for charging procedure.*

The ELITE units have a factory holding charge of 2 pounds of R-454B in each circuit. The outdoor unit should be charged during warm weather. However, applications arise in which charging must occur in the colder months. The method of charging is determined by the outdoor ambient temperature. Before charging the unit, determine the liquid line temperature and the outdoor ambient temperature.

**Charge Using the Subcooling Method –**

**Outdoor Temperature > 65ºF (18.3ºC)**

1 - Attach pressure gauge set to liquid and suction service valves. Operate unit for at least five (5) minutes to allow system pressures to stabilize, then, use a thermometer to record the liquid line temperature.

2 - At the same time, record the liquid line pressure reading. Use a temperature/pressure chart for R-454B to determine the saturation temperature for the liquid line pressure reading.

3 - Subtract the liquid line temperature from the saturation temperature (according to the chart) to determine subcooling (Saturation temperature - Liquid line temperature = Subcooling Value).

4 - Compare the subcooling value with those in table for the specific system match. If subcooling is greater than shown, recover some refrigerant. If subcooling is less than shown, add refrigerant.

5 - Repeat steps 1 – 5 anytime refrigerant is added or recovered.

6 - For Heat Pump models – Switch to heating mode and let the system stabilize at least 10 minutes. Then confirm that the pressures obtained from the connected gauges match the normal operating pressures (heating mode) in table for the specific system match.

**Charge Using Normal Operating Pressures/Approach Method (High Capacity)**

**Outdoor Temperature ≥ 65ºF (18.3ºC)**

For best results, indoor temperature should be 70°F (21°C) to 80°F (26°C). Monitor system pressures while charging.

1 - Attach pressure gauge set to liquid and suction service valves.

2 - Operate unit for at least five (5) minutes to allow system pressures to stabilize. Record pressures.

3 - Compare stabilized pressures with those provided in table for the specific system match. Minor variations are to be expected; significant differences could mean that the system is not properly charged or that a problem exists with some component in the system. The approach method is not valid for grossly over or under-charged systems.

4 - Pressures higher than those listed indicate that the system is overcharged. Pressures lower than those listed indicate that the system is undercharged. Add or recover charge until the pressures are within the tolerances on the table.

5 - Repeat steps 2 – 4 each time refrigerant is added or recovered.

6 - Verify charge using the approach method.

7 - Use the same thermometer to measure and record liquid line temperature.

8 - Subtract the outdoor temperature from the liquid line temperature to determine the approach value (Liquid line temperature – Ambient temperature = Approach Temperature).

9 - The approach temperature should match value given in table for the specific system match. If the values don't agree with the those in table, add refrigerant to lower the approach temperature or recover refrigerant from the system to increase the approach temperature.

10 - Operate unit for at least five (5) minutes to allow system pressures to stabilize.

11 - Repeat steps 7 – 10 each time refrigerant is added or recovered.

12 - For Heat Pump models – Switch to heating mode and let the system stabilize at least 10 minutes. Then confirm that the pressures obtained from the connected gauges match the normal operating pressures (heating mode) in table for the specific system match.

**Outdoor Temperature < 65ºF (18.3ºC)**

When the outdoor ambient temperature is below 65ºF (18.3ºC) it may be necessary to restrict the air flow through the outdoor coil to achieve pressures in the 325-375 psig (2240-2485 kPa) range. These higher pressures are necessary for checking the charge. Block equal sections of air intake panels and move obstructions sideways until the liquid pressure is in the 325-375 psig (2240-2485 kPa) range. See FIGURE 1. Once pressure is in range, charge using Normal Operating Pressures/Approach Method (High Capacity).

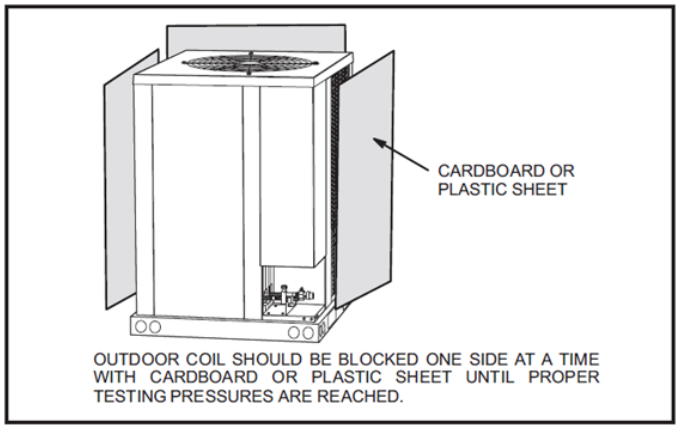



**FIGURE 1. Blocking Outdoor Coil**

**Using the Normal Operating Pressures and Temperatures Table**

Tables may be used to help perform maintenance checks. This table is not a procedure for charging the system and any minor variations in the pressures may be expected due to differences in installations. However, significant deviations could mean that the system is not properly charged or that a problem exists with some component in the system.

## Commercial Cooling Model(s) – Normal Operating Pressures and Temperatures

Note - Pressures at 80°F dry bulb and 67°F wet bulb entering indoor air temperatures.

### EL072KCSS - EL090KASD

| **EL072KCSS - EL090KASD** | |
|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | |
| Temp. °F (°C) | 12 (6.7) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | |
| Temp. °F (°C) | 6 (3.3) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** |
| 65 (18) | 235/134 |
| 75 (24) | 274/135 |
| 85 (29) | 317/137 |
| 95 (35) | 363/139 |
| 105 (41) | 413/141 |
| 115 (46) | 467/143 |
| 125 (52) | 525/145 |
| SCFM | 2750 |

## EL090KCSS - EL120KASD

| EL090KCSS - EL120KASD | |
|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** | |
| *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | |
| Temp. °F (°C) | 12 (6.7) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** | |
| *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | |
| Temp. °F (°C) | 6 (3.3) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** |
| 65 (18) | 236/124 |
| 75 (24) | 273/126 |
| 85 (29) | 313/128 |
| 95 (35) | 358/130 |
| 105 (41) | 406/133 |
| 115 (46) | 458/135 |
| 125 (52) | 514/137 |
| SCFM | 2750 |

## (2) EL090KCSS - EL180KASD

| (2) EL090KCSS - EL180KASD | CIR. 1 | CIR. 2 |
|---|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | | |
| Temp. °F (°C) | 12 (6.7) | 12 (6.7) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | | |
| Temp. °F (°C) | 4 (2.2) | 4 (2.2) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** | |
| 65 (18) | 232/115 | 231/113 |
| 75 (24) | 269/117 | 268/114 |
| 85 (29) | 309/119 | 309/117 |
| 95 (35) | 354/121 | 353/119 |
| 105 (41) | 401/123 | 401/122 |
| 115 (46) | 454/127 | 452/124 |
| 125 (52) | 510/129 | 509/128 |
| SCFM | 5200 | |

## (2) EL120KCSS - EL240KASD

| (2) EL120KCSS - EL240KASD | | |
|---|---|---|
| | **CIR. 1** | **CIR. 2** |
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | | |
| Temp. °F (°C) | 8 (4.4) | 8 (4.4) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | | |
| Temp. °F (°C) | 6 (3.3) | 6 (3.3) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** | |
| 65 (18) | 224/122 | 224/122 |
| 75 (24) | 260/123 | 260/123 |
| 85 (29) | 300/125 | 300/125 |
| 95 (35) | 344/128 | 344/128 |
| 105 (41) | 391/129 | 391/129 |
| 115 (46) | 443/131 | 443/131 |
| 125 (52) | 499/134 | 499/134 |
| SCFM | 7400 | |

## EL150KCSD - EL180KASD

| EL150KCSD - EL180KASD | | |
|---|---|---|
| | **CIR. 1** | **CIR. 2** |
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | | |
| Temp. °F (°C) | 12 (6.7) | 12 (6.7) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | | |
| Temp. °F (°C) | 5 (2.8) | 5 (2.8) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** | |
| 65 (18) | 239/127 | 237/124 |
| 75 (24) | 276/130 | 274/125 |
| 85 (29) | 317/132 | 315/127 |
| 95 (35) | 361/133 | 359/130 |
| 105 (41) | 409/135 | 407/132 |
| 115 (46) | 462/138 | 459/134 |
| 125 (52) | 519/141 | 516/137 |
| SCFM | 5200 | |

## EL180KCSD - EL240KASD

| EL180KCSD - EL240KASD | | |
|---|---|---|
| | **CIR. 1** | **CIR. 2** |
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | | |
| Temp. °F (°C) | 9 (5.0) | 10 (5.6) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | | |
| Temp. °F (°C) | 4 (2.2) | 4 (2.2) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** | |
| 65 (18) | 217/130 | 219/131 |
| 75 (24) | 255/133 | 256/133 |
| 85 (29) | 296/135 | 296/136 |
| 95 (35) | 340/137 | 341/138 |
| 105 (41) | 390/140 | 391/140 |
| 115 (46) | 443/142 | 445/142 |
| 125 (52) | 500/145 | 501/145 |
| SCFM | 7025 | |

## EL180KCSD - (2) EL090KASD

| EL180KCSD - (2) EL090KASD | | |
|---|---|---|
| | **CIR. 1** | **CIR. 2** |
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | | |
| Temp. °F (°C) | 9 (5.0) | 10 (5.6) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | | |
| Temp. °F (°C) | 4 (2.2) | 3 (1.7) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** | |
| 65 (18) | 215/120 | 217/120 |
| 75 (24) | 252/122 | 253/123 |
| 85 (29) | 293/125 | 294/125 |
| 95 (35) | 337/128 | 339/129 |
| 105 (41) | 385/130 | 388/131 |
| 115 (46) | 438/133 | 441/133 |
| 125 (52) | 497/137 | 498/137 |
| SCFM | 5200 (2600 per unit) | |

## EL240KCSD - (2) EL120KASD

| EL240KCSD - (2) EL120KASD | CIR. 1 | CIR. 2 |
|---|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | | |
| Temp. °F (°C) | 11 (6.1) | 12 (6.7) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** | | |
| *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | | |
| Temp. °F (°C) | 4 (2.2) | 3 (1.7) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** | |
| 65 (18) | 226/120 | 226/120 |
| 75 (24) | 263/122 | 265/122 |
| 85 (29) | 304/124 | 305/124 |
| 95 (35) | 348/127 | 349/126 |
| 105 (41) | 396/129 | 397/129 |
| 115 (46) | 448/131 | 449/131 |
| 125 (52) | 505/135 | 506/135 |
| SCFM | 7025 (3513 per unit) | |

## Residential Cooling Model(s) – Normal Operating Pressures and Temperatures

Note - Pressures at 80°F dry bulb and 67°F wet bulb entering indoor air temperatures.

### EL090KCSS + (2) CK40CT-60D-71 + (2) EL296UH135XE60D

| EL090KCSS + (2) CK40CT-60D-71 + (2) EL296UH135XE60D | |
|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | |
| Temp. °F (°C) | 12 (6.7) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | |
| Temp. °F (°C) | 6 (3.3) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** |
| 65 (18) | 238/130 |
| 75 (24) | 276/132 |
| 85 (29) | 316/134 |
| 95 (35) | 360/135 |
| 105 (41) | 408/137 |
| 115 (46) | 460/140 |
| 125 (52) | 516/143 |
| SCFM | 3545 (1771 per unit) |

## EL090KCSS + (2) CK40CT-60C-71 + (2) EL280UH110E48C

| EL090KCSS + (2) CK40CT-60C-71 + (2) EL280UH110E48C | |
|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | |
| Temp. °F (°C) | 12 (6.7) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | |
| Temp. °F (°C) | 6 (3.3) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** |
| 65 (18) | 239/132 |
| 75 (24) | 276/133 |
| 85 (29) | 317/135 |
| 95 (35) | 361/137 |
| 105 (41) | 409/139 |
| 115 (46) | 461/141 |
| 125 (52) | 516/144 |
| SCFM | 3210 (1604 per unit) |

## EL090KCSS + (2) CK40CT-60C-71 + (2) EL296UH110XE60C

| EL090KCSS + (2) CK40CT-60C-71 + (2) EL296UH110XE60C | |
|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | |
| Temp. °F (°C) | 12 (6.7) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | |
| Temp. °F (°C) | 6 (3.3) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** |
| 65 (18) | 239/133 |
| 75 (24) | 276/134 |
| 85 (29) | 317/135 |
| 95 (35) | 361/138 |
| 105 (41) | 409/140 |
| 115 (46) | 461/142 |
| 125 (52) | 517/145 |
| SCFM | 3285 (1641 per unit) |

**EL090KCSS + (2) CK40CT-60C-71 + (2) EL280UH110E60C**
**EL090KCSS + (2) CK40CT-60C-71 + (2) EL280UH110XE60C**

| EL090KCSS + (2) CK40CT-60C-71 + (2) EL280UH110E60C<br>EL090KCSS + (2) CK40CT-60C-71 + (2) EL280UH110XE60C | |
|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature**<br>*Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | |
| Temp. °F (°C) | 12 (6.7) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature**<br>*Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | |
| Temp. °F (°C) | 6 (3.3) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.*<br>**Liquid Line Pressure / Vapor Line Pressure** |
| 65 (18) | 239/131 |
| 75 (24) | 276/132 |
| 85 (29) | 317/134 |
| 95 (35) | 361/136 |
| 105 (41) | 409/138 |
| 115 (46) | 460/141 |
| 125 (52) | 516/143 |
| SCFM | 3115 (1556 per unit) |

## EL120KCSS + (2) CK40CT-60C-71 + (2) EL280UH110E60C
## EL120KCSS + (2) CK40CT-60C-71 + (2) EL280UH110XE60C

| EL120KCSS + (2) CK40CT-60C-71 + (2) EL280UH110E60C<br>EL120KCSS + (2) CK40CT-60C-71 + (2) EL280UH110XE60C | |
|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature**<br>*Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | |
| Temp. °F (°C) | 9 (5.0) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature**<br>*Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | |
| Temp. °F (°C) | 6 (3.3) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.*<br>**Liquid Line Pressure / Vapor Line Pressure** |
| 65 (18) | 223/120 |
| 75 (24) | 261/122 |
| 85 (29) | 302/124 |
| 95 (35) | 347/126 |
| 105 (41) | 398/128 |
| 115 (46) | 451/131 |
| 125 (52) | 509/133 |
| SCFM | 3115 (1556 per unit) |

## EL120KCSS + (2) CK40CT-60C-71 + (2) EL296UH110XE60C

| EL120KCSS + (2) CK40CT-60C-71 + (2) EL296UH110XE60C | |
|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | |
| Temp. °F (°C) | 9 (5.0) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | |
| Temp. °F (°C) | 7 (3.9) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** |
| 65 (18) | 223/122 |
| 75 (24) | 261/124 |
| 85 (29) | 302/125 |
| 95 (35) | 347/127 |
| 105 (41) | 398/130 |
| 115 (46) | 451/132 |
| 125 (52) | 510/135 |
| SCFM | 3285 (1641 per unit) |

## EL120KCSS + (2) CK40CT-60D-71 + (2) EL296UH135XE60D

| EL120KCSS + (2) CK40CT-60D-71 + (2) EL296UH135XE60D | |
|---|---|
| **Subcooling Values (High Capacity) - at 95°F Ambient Temperature** *Saturation Temperature minus Liquid Line Temperature °F (°C) ±1°F* | |
| Temp. °F (°C) | 9 (5.0) |
| **Approach Values (High Capacity) - at 95°F Ambient Temperature** *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C)* | |
| Temp. °F (°C) | 6 (3.3) |
| **Normal Operating Pressures (Liquid ±10 & Suction ±5 psig)** | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* **Liquid Line Pressure / Vapor Line Pressure** |
| 65 (18) | 223/119 |
| 75 (24) | 260/121 |
| 85 (29) | 302/123 |
| 95 (35) | 347/125 |
| 105 (41) | 397/127 |
| 115 (46) | 451/131 |
| 125 (52) | 509/133 |
| SCFM | 3545 (1771 per unit) |

## Commercial Heat Pump Model(s) – Normal Operating Pressures and Temperatures

## (2) EL090KPSS + EL240KASD

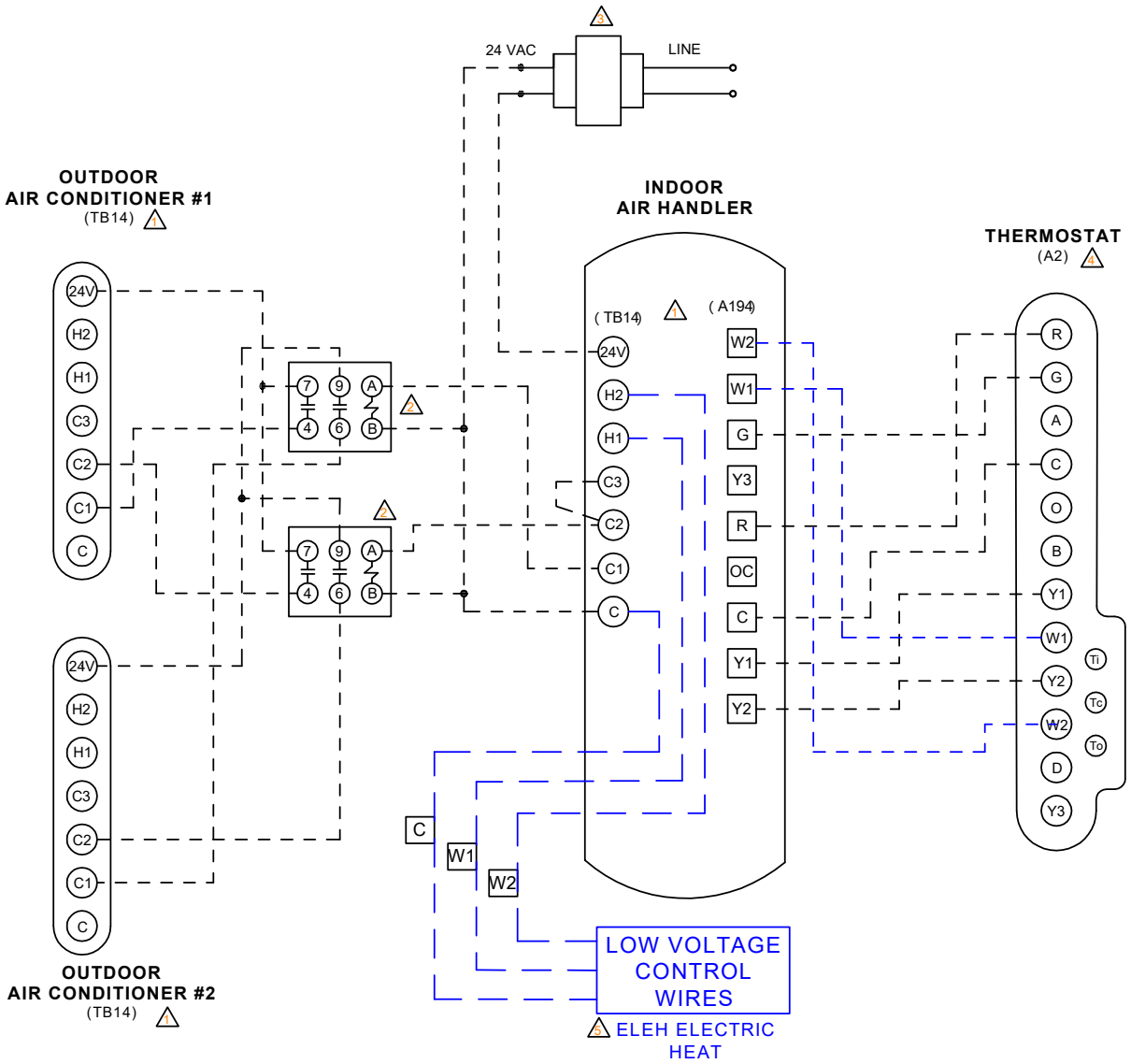
| (2) EL090KPSS - EL240KASD | | |
|---|---|---|
| | **CIR. 1** | **CIR. 2** |
| **Subcooling Values - Cooling (High Capacity) - at 95°F Ambient Temperature** | | |
| *Saturation Temperature minus Liquid Line Temperature ° F (°C) ±1°F (0.5°C)* | | |
| Temp. °F (°C) | 6 (3.3) | 6 (3.3) |
| **Approach Values - (High Capacity) - at 95°F Ambient Temperature** | | |
| *Liquid Line Temperature minus Outdoor Ambient Temperature °F (°C) ± 1°F (0.5°C)* | | |
| Temp. °F (°C) | 8 (4.4) | 8 (4.4) |
| **Normal Operating Pressures - Cooling (Liquid ±10 & Suction ±5 psig)** | | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* *(Pressures at 80°F dry bulb and 67°F wet bulb entering indoor air temperatures)* **Liquid Line Pressure / Vapor Line Pressure** | |
| 65 (18) | 224/126 | 224/126 |
| 75 (24) | 260/129 | 260/129 |
| 85 (29) | 300/130 | 300/130 |
| 95 (35) | 344/133 | 344/133 |
| 105 (41) | 391/135 | 391/135 |
| 115 (46) | 442/138 | 442/138 |
| 125 (52) | 497/141 | 497/141 |
| **Normal Operating Pressures - Heating (Liquid ±10 & Suction ±5 psig)** | | |
| Air Temperature Entering Outside Coil | *The values below are typical pressures; indoor air quantity, and evaporator load will cause the pressures to vary.* *(Pressures at 70°F dry bulb entering indoor air temperatures)* **Liquid Line Pressure / Vapor Line Pressure** | |
| 60 (15) | 340/111 | 340/111 |
| 50 (10) | 321/94 | 321/94 |
| 40 (4) | 304/79 | 304/79 |
| 30 (-1) | 288/65 | 288/65 |
| 20 (-6) | 276/53 | 276/53 |
| 10 (-12) | 264/43 | 264/43 |
| SCFM | 6000 | |

## Interconnected Wiring Diagrams and Thermostat Operations

The purpose of the interconnect diagrams is to enable AHRI testing agencies to wire up 2-1 and 1-2 Commercial Elite Splits matchups for performance (ratings) testing. All multiple unit interconnection diagrams require field provided thermostat, relay(s), transformer(s). For non-AHRI testing applications, engineering strongly suggests consulting with Lennox technical support before attempting to apply these diagrams in the field.

Unit operation tables based upon thermostat demands have been provided for each of the interconnect diagrams as a means of verifying proper wiring.

For FIGURE 4 wiring, if either indoor Air Handler detects a refrigerant leak and initiates the mitigation process, the non-leaking unit's blower will activate at the "G" demand speed until the leak is no longer detected. For FIGURE 5 wiring (using integrated furnace controller), if either Furnace detects refrigerant leak and initiates the leak mitigation process, the non-leaking furnace will activate its blower in high speed until the leak is no longer detected.



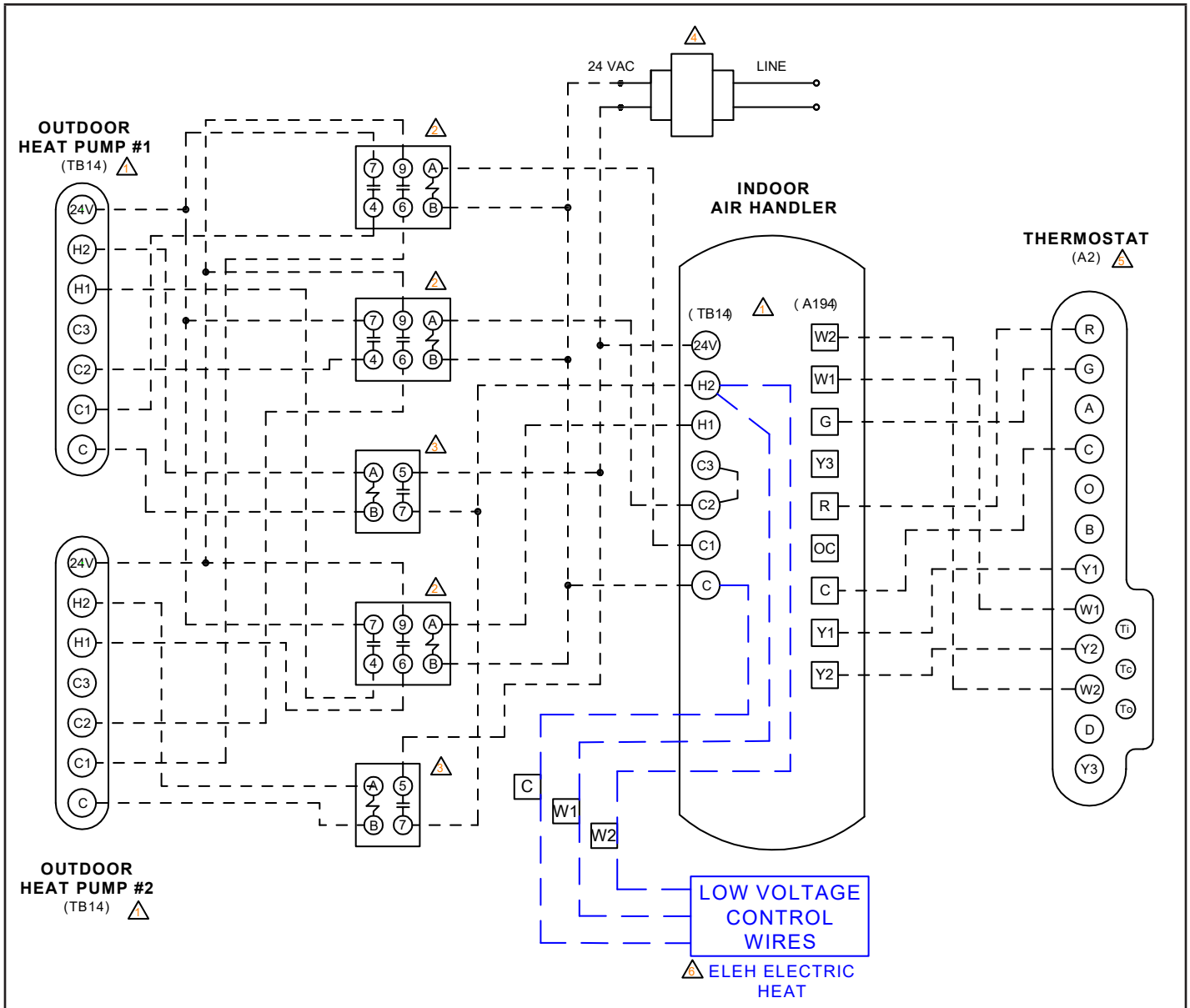

1. A194 & TB14 - TERMINAL STRIP-CLASS II VOLTAGE ( FACTORY INSTALLED)
2. 67K65 - RELAY, DPDT, 24V COIL ( FIELD PROVIDED)
3. 24 VAC / 70 VA ( MIN.) TRANSFORMER ( FIELD PROVIDED)
4. A2 - THERMOSTAT ( FIELD PROVIDED)
5. OPTIONAL FIELD INSTALLED ACCESSORY **( NOT USED FOR AHRI)**

— — — — — CLASS II FIELD WIRING

— — — OPTIONAL CLASS II FIELD WIRING

| | |
|---|---|
| WIRING DIAGRAM | 05/25 |
| SPLIT SYSTEMS - 2 ELKC + 1 ELKA | |
| LABEL-WIRING INTERCONNECT<br>FIELD CONNECTION AC (2 COOL W/ OPT. ELEC. HEAT) | |
| SECTION C | REV. 0 |
| Supersedes<br>538323-01 | New Form No.<br>538323-02 |

**FIGURE 2. Two Air Conditioners (Outdoor) and One Indoor Air Handler (Indoor)**




1. A194 & TB14 - TERMINAL STRIP-CLASS II VOLTAGE ( FACTORY INSTALLED)
2. 67K65 - RELAY, DPDT, 24V COIL ( FIELD PROVIDED)
3. 56L68 - RELAY, SPDT, 24V COIL ( FIELD PROVIDED)
4. 24 VAC / 70 VA ( MIN.) TRANSFORMER ( FIELD PROVIDED)
5. A2 - THERMOSTAT ( FIELD PROVIDED)
6. OPTIONAL FIELD INSTALLED ACCESSORY **( NOT USED FOR AHRI)**

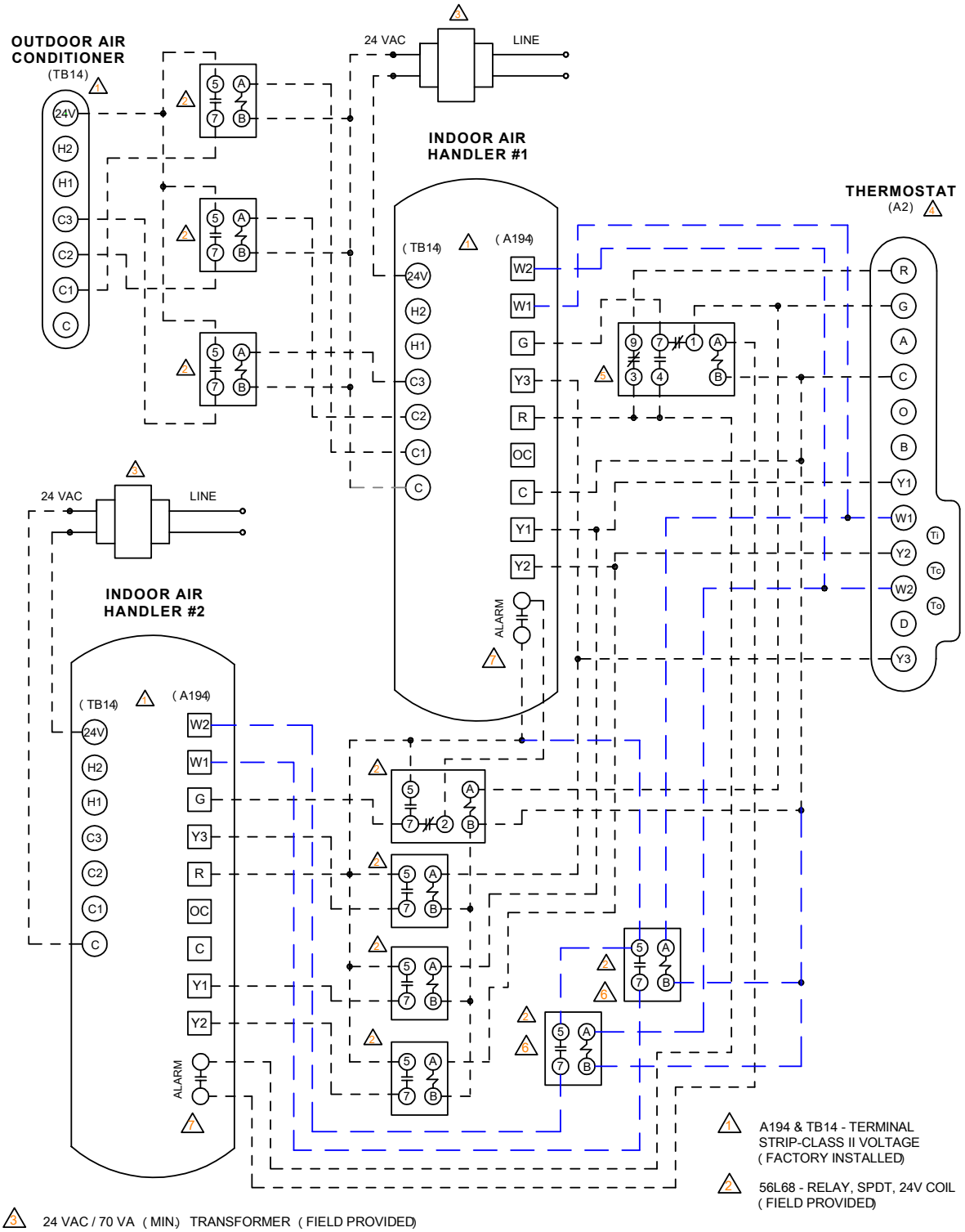
— — — — CLASS II FIELD WIRING

— — — OPTIONAL CLASS II FIELD WIRING **( NOT USED FOR AHRI)**

——— CLASS II FACTORY WIRING

| WIRING DIAGRAM | 05/25 |
|---|---|
| SPLIT SYSTEMS - 2 ELKP + 1 ELKA | |
| LABEL-WIRING DIAGRAM<br>FIELD CONNECTION HP (2 COOL W/ OPT. ELEC. HEAT) | |
| SECTION C | REV. 0 |
| Supersedes<br>538324-01 | New Form No.<br>538324-02 |

**FIGURE 3. Two Heat Pumps (Outdoor) and One Air Handler (Indoor)**




1 A194 & TB14 - TERMINAL STRIP-CLASS II VOLTAGE ( FACTORY INSTALLED)

2 56L68 - RELAY, SPDT, 24V COIL ( FIELD PROVIDED)

3 24 VAC / 70 VA ( MIN.) TRANSFORMER ( FIELD PROVIDED)

4 A2 - THERMOSTAT ( FIELD PROVIDED)

5 67K65 - RELAY, DPDT, 24V COIL ( FIELD PROVIDED)

6 OPTIONAL ELEH ELECTRIC HEAT ISOLATION RELAYS SHOWN FOR REFERENCE **( NOT USED FOR AHRI)**

7 A194 MITIGATION ACTIVATION ON EITHER AHU PLACES THE OTHER AHU INTO BLOWER ONLY OPERATION.

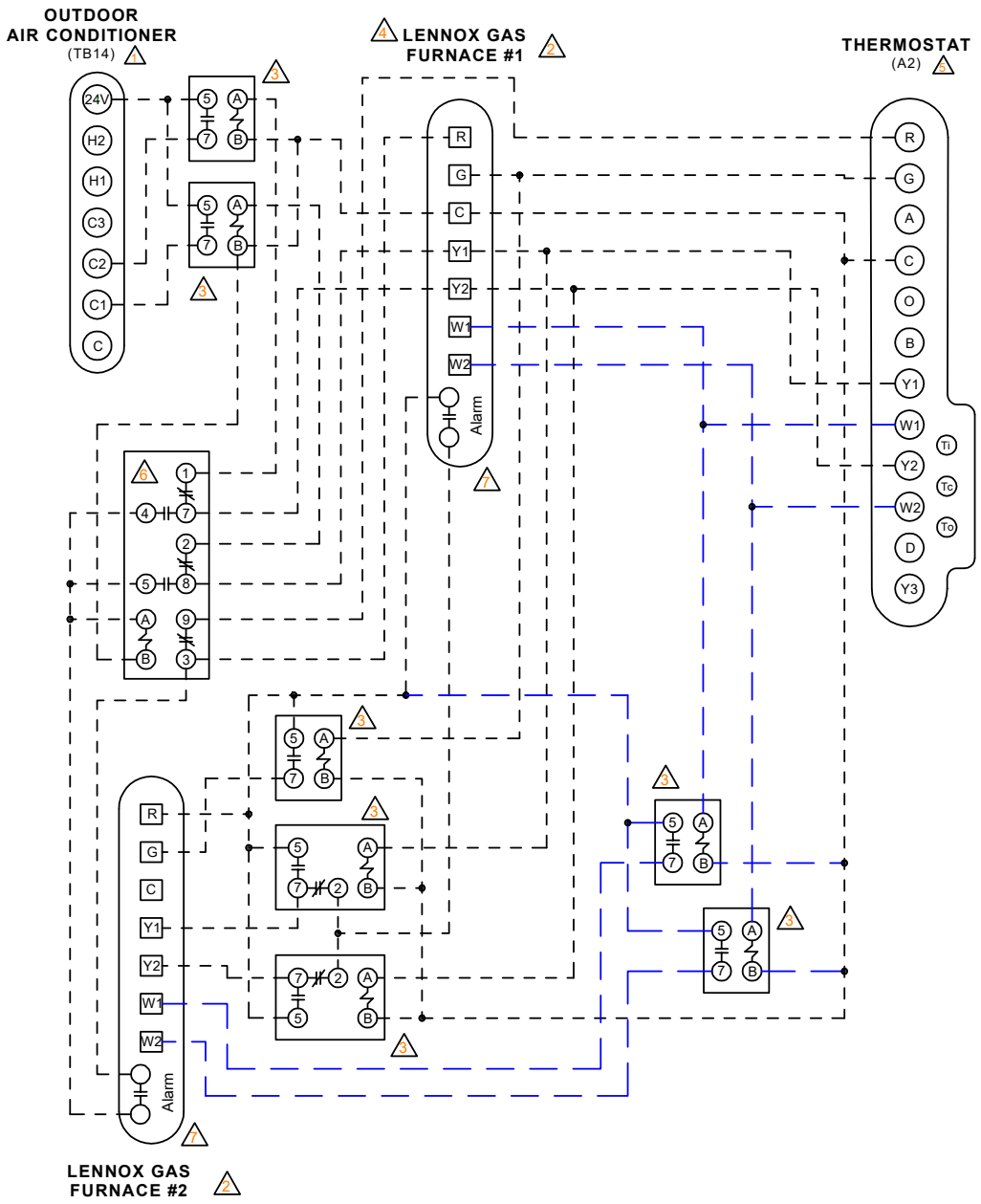
CLASS II FIELD WIRING

OPTIONAL CLASS II FIELD WIRING **( NOT USED FOR AHRI)**

CLASS II FACTORY WIRING

| WIRING DIAGRAM | 05/25 |
|---|---|
| SPLIT SYSTEMS - 1 ELKC + 2 ELKA | |
| LABEL-WIRING DIAGRAM<br>FIELD CONNECTION (3 COOL W/O ELEC. HTR.) | |
| SECTION C | REV. 0 |
| Supersedes<br>538325-01 | New Form No.<br>538325-02 |

**FIGURE 4. One Air Conditioner (Outdoor) and Two Air Handlers (Indoor)**




1. TB14 - TERMINAL STRIP-CLASS II VOLTAGE ( FACTORY INSTALLED)
2. SEE ELITE SPLITS ENGINEERING HANDBOOK FOR APPLICABLE GAS FURNACE MODELS
3. 56L68 - RELAY, SPDT, 24V COIL ( FIELD PROVIDED)
4. REPLACE FACTORY 24 VAC TRANSFORMER WITH FIELD PROVIDED 24 VAC / 70 VA MIN. TRANSFORMER
5. A2 - THERMOSTAT ( FIELD PROVIDED)
6. 67K66 - RELAY, 3PDT, 24V COIL FIELD PROVIDED)
7. WIRING FOR FURNACE CONTROL BOARD WITH R454B LEAK SYSTEM INTEGRATED. MITIGATION ACTIVATION ON EITHER FURNACE PLACES THE OTHER FURNACE INTO HIGH SPEED BLOWER OPERATION.

- – – – – CLASS II FIELD WIRING
- — — — CLASS II FIELD WIRING **( NOT USED BY AHRI)**

| WIRING DIAGRAM | 05/25 |
|---|---|
| SPLIT SYSTEMS - RESI. FURNACE | |
| LABEL-WIRING DIAGRAM<br>FIELD CONNECTION AC (2 COOL W/ RESI. FURNACE) | |
| SECTION C | REV. 0 |
| Supersedes<br>538326-01 | New Form No.<br>538326-02 |

**FIGURE 5. One Air Conditioner (Outdoor) and Two Residential Furnaces (Indoor)**

## TABLE 1

**Cooling Operation - Two Air Conditioners and One Air Handler (wired per FIGURE 2)**

| Thermostat (Output Signal) | AHU Blower Speed | AC #1 | | AC #2 | | ELEH Heater (Option) |
|---|---|---|---|---|---|---|
| | | Compressor Speed | Fan(s) | Compressor Speed | Fan(s) | |
| Y1 | Low | Low | On | Low | On | Off |
| Y2 | High | High | On | High | On | Off |
| G | Low or High | Off | Off | Off | Off | Off |
| W1* | High | Off | Off | Off | Off | On |
| W2* | High | Off | Off | Off | Off | On |

*Consult instructions for specific ELEH model for staging details; ELEH not installed for AHRI testing.

## TABLE 2

**Cooling & Heating Operation - Two Heat Pumps and One Air Handler (wired per FIGURE 3)**

| Thermostat (Output Signal) | AHU Blower Speed | HP #1 | | HP #2 | | ELEH Heater (Option) |
|---|---|---|---|---|---|---|
| | | Compressor Speed | Fan(s) | Compressor Speed | Fan(s) | |
| Y1 | Low | Low | On | Low | On | Off |
| Y2 | High | High | On | High | On | Off |
| G | Low or High | Off | Off | Off | Off | Off |
| W1 | High | High | On | High | On | Off |
| W2+* | High | Off | Off | Off | Off | On |

*Consult instructions for specific ELEH model for staging details; ELEH not installed for AHRI testing.

+H2 Signal from Heat Pump is “On” (24V power) during defrost mode.

## TABLE 3

**Cooling Operation - One Air Conditioners and Two Air Handler (wired per FIGURE 4)**

| Thermostat (Output Signal) | AHU #1 Blower Speed | AHU #2 Blower Speed | Air Conditioner | | | ELEH Heater (Option) |
|---|---|---|---|---|---|---|
| | | | Compressor #1 Speed | Compressor #2 Speed | 4 Fan(s) | |
| Y1 | Low | Low | Low | Off | 2 On | Off |
| Y2 | Medium | Medium | Low | Low | 4 On | Off |
| Y3 | High | High | High | High | 4 On | Off |
| G | Low or High | Low or High | Off | Off | Off | Off |
| W1* | High | High | Off | Off | Off | On |
| W2* | High | High | Off | Off | Off | On |

*Consult instructions for specific ELEH model for staging details; ELEH not installed for AHRI testing.

## TABLE 4

**Cooling Operation - One Air Conditioner and Two Residential Furnaces (wired per FIGURE 5)**

| Thermostat (Output Signal) | Furnace #1 Blower Speed | Furnace #2 Blower Speed | Air Conditioner | |
|---|---|---|---|---|
| | | | Compressor Speed | Fan(s) |
| Y1 | Low | Low | Low | On |
| Y2 | High | High | High | On |
| G* | On | On | Off | Off |
| W1* | On | On | Off | Off |
| W2* | On | On | Off | Off |

*Consult instructions for specific Furnace model for staging and airflow details.