

# XP20 HFC-410A CHARGING INFORMATION – FOR COMPLETE CHARGING PROCEDURES, REFER TO THE APPLICABLE INSTALLATION AND SERVICE MANUAL

## Maintenance checks using the Normal Operating Pressures table

Table 1 may be used to help perform maintenance checks. This table is not a procedure for charging the system. Minor variations in the pressures can 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.

## Matched System Components/Charge Levels/Line Set Length/Liquid Line Sizing

Table 2 lists all the Lennox recommended indoor unit matches along with the charge levels for the various sizes of outdoor units. Charge levels on the unit nameplate are based on installations with 15' (4.6m) line sets; consider line set length and liquid line sizing differences when calculating charge adjustments. For each additional foot of 3/8" liquid line set, add 0.6 ounces or for 1/2" liquid lines, add 1.0 ounce of additional charge.

## Charge Using the Weigh-in Method

If the system is void of refrigerant, locate and repair any leaks and then weigh in the refrigerant charge into the unit. For charge adjustments, be sure to consider line set length differences and, referring to table 2, adjust for the matchup difference.

- 1 - Recover the refrigerant from the unit.
- 2 - Conduct leak check; evacuate the system.
- 3 - Weigh in the unit nameplate charge, adjusting for matchup and line set length differences. If weighing facilities are not available use the Subcooling method.

## Charge Using the Subcooling Method

**Cooling Mode**—When the outdoor ambient temperature is 60°F (15°C) and above, use the cooling mode to adjust the charge using the subcooling method. Target subcooling values in table 2 are based on 70 to 80°F (21-27°C) indoor return air temperature.

**Heating Mode**—When the outdoor ambient temperature is below 60°F (15°C), use the heating mode to adjust the charge using the subcooling charge levels (table ). Target subcooling values in table 2 are based on 65-75°F (18-24°C) indoor return air temperature.

**Table 1 - Normal Operating Pressures (Liquid ±10 and Suction ±5 psig)**

| XP20 Model                           | -024                                       | -036      | -048      | -060      |
|--------------------------------------|--|-----------|-----------|-----------|
| °F                                   | Liquid Line Pressure / Vapor Line Pressure |           |           |           |
| <b>Heating Operation – Max Speed</b> |  |           |           |           |
| 20                                   | 270 / 55                                   | 330 / 62  | 340 / 61  | 355 / 60  |
| 30                                   | 285 / 68                                   | 357 / 75  | 370 / 76  | 370 / 76  |
| 40                                   | 305 / 87                                   | 375 / 90  | 400 / 92  | 390 / 90  |
| 50                                   | 320 / 105                                  | 395 / 105 | 415 / 110 | 410 / 105 |
| <b>Cooling Operation – Max Speed</b> |  |           |           |           |
| 65                                   | 245 / 140                                  | 240 / 135 | 245 / 130 | 235 / 132 |
| 70                                   | 260 / 142                                  | 250 / 138 | 265 / 131 | 255 / 133 |
| 75                                   | 280 / 145                                  | 270 / 140 | 285 / 132 | 275 / 134 |
| 80                                   | 300 / 145                                  | 290 / 141 | 305 / 134 | 295 / 135 |
| 85                                   | 325 / 147                                  | 310 / 142 | 330 / 135 | 315 / 136 |
| 90                                   | 345 / 148                                  | 335 / 143 | 355 / 137 | 340 / 137 |
| 95                                   | 370 / 150                                  | 360 / 143 | 380 / 138 | 365 / 138 |
| 100                                  | 395 / 150                                  | 385 / 145 | 405 / 139 | 390 / 140 |
| 105                                  | 423 / 152                                  | 410 / 146 | 430 / 140 | 415 / 141 |
| 110                                  | 450 / 153                                  | 440 / 148 | 460 / 142 | 445 / 142 |
| 115                                  | 480 / 155                                  | 465 / 149 | 485 / 142 | 475 / 144 |

**Table 2 - Indoor Unit Matchups and Subcooling Charge Levels**

| INDOOR MATCHUP      | HEAT PUMP | Target Subcooling |                | *Add charge |           | INDOOR MATCHUP | HEAT PUMP | Target Subcooling |                | *Add charge |           |
|---------------------|-----------|-------------------|----------------|-------------|-----------|----------------|-----------|-------------------|----------------|-------------|-----------|
|                     |           | Heating (+5°F)    | Cooling (+1°F) |             |           |                |           | Heating (+5°F)    | Cooling (+1°F) |             |           |
| <b>-024</b>         |           |                   |                | <b>lb</b>   | <b>oz</b> |                |           |                   |                |             |           |
| CBX32MV-024 / -030  |           | 14                | 13             | 1           | 1         | CBX32MV-060    |           | 32                | 15             | 3           | 2         |
| CBX32MV-018 / -024  |           | 12                | 11             | 0           | 0         | CBX40UHV-060   |           | 32                | 15             | 3           | 2         |
| CR33-48B            |           | 13                | 11             | 1           | 3         | CH33-49C       |           | 23                | 11             | 2           | 5         |
| C33 / CX34-31       |           | 12                | 16             | 1           | 7         | CH33-50 / 60C  |           | 23                | 12             | 2           | 5         |
| C33 / CX34-38       |           | 13                | 17             | 2           | 0         | CH33-62D       |           | 22                | 11             | 3           | 3         |
| CH35-30B            |           | 14                | 13             | 0           | 15        | CR33-50 / 60C  |           | 38                | 10             | 1           | 3         |
|                     |           |                   |                |             |           | CR33-60D       |           | 38                | 10             | 1           | 3         |
| <b>-036</b>         |           |                   |                | <b>lb</b>   | <b>oz</b> | C33 / CX34-49  |           | 28                | 13             | 2           | 7         |
| CBX32MV-036         |           | 28                | 10             | 1           | 12        | C33 / CX34-62C |           | 23                | 13             | 3           | 1         |
| CBX40UHV-036        |           | 28                | 10             | 1           | 12        | C33 / CX34-62D |           | 23                | 12             | 2           | 4         |
| CH33-44 / 48B       |           | 23                | 10             | 1           | 0         | CH35-60D       |           | 30                | 12             | 2           | 1         |
| CH33-48C            |           | 19                | 10             | 0           | 0         |                |           |                   |                | <b>lb</b>   | <b>oz</b> |
| CR33-50 / 60C       |           | 14                | 11             | 3           | 4         | <b>-060</b>    |           |                   |                |             |           |
| C33 / CX34-38       |           | 23                | 10             | 0           | 5         | CBX32MV-060    |           | 17                | 8              | 0           | 15        |
| C33 / CX34-43       |           | 25                | 9              | 2           | 1         | CBX40UHV-060   |           | 17                | 8              | 0           | 15        |
| CX34-44 / 48 C33-48 |           | 34                | 10             | 1           | 4         | CH33-49C       |           | 25                | 10             | 1           | 1         |
| CH35-48B            |           | 20                | 11             | 1           | 3         | CH33-50 / 60C  |           | 25                | 10             | 1           | 1         |
| C33 / CX34-50 / 60  |           | 25                | 9              | 2           | 1         | CH33-62D       |           | 25                | 10             | 2           | 6         |
| CH35-48C            |           | 18                | 7              | 5           | 1         | CR33-60D       |           | 18                | 7              | 0           | 0         |
|                     |           |                   |                |             |           | C33 / CX34-49  |           | 16                | 8              | 0           | 8         |
| <b>-048</b>         |           |                   |                | <b>lb</b>   | <b>oz</b> | C33 / CX34-62C |           | 22                | 11             | 2           | 1         |
| CBX32MV-048         |           | 30                | 11             | 0           | 0         | C33 / CX34-62D |           | 18                | 10             | 1           | 8         |
| CBX40UHV-048        |           | 30                | 11             | 0           | 0         | CH35-60D       |           | 30                | 9              | 0           | 3         |

\*Amount of charge required in addition to charge shown on unit nameplate. (Remember to consider line set length.)

NOTE - When charging a system with a C33 coil (cased or uncased) with a TXV installed, use the CX34 charge information.



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